

VOLUME 8

Pages 1827 - 2098-A

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable YVONNE GONZALEZ ROGERS, Judge

EPIC GAMES, INC.,)	
)	
Plaintiff,)	NO. C-20-5640 YGR
)	
vs.)	Wednesday, May 12, 2021
)	
APPLE, INC.,)	Oakland, California
)	
Defendant.)	BENCH TRIAL
)	
APPLE, INC.,)	
)	
Counterclaimant,)	
vs.)	
)	
EPIC GAMES, Inc.,)	
)	
Counter-Defendant.)	
)	

REPORTER'S TRANSCRIPT OF PROCEEDINGS

APPEARANCES:

For Plaintiff: CRAVATH, SWAINE & MOORE, LLP
825 Eighth Avenue
New York, New York 10019
BY: KATHERINE B. FORREST, ESQUIRE
GARY A. BORNSTEIN, ESQUIRE
YONATAN EVEN, ESQUIRE

(Appearances continued.)

Reported By: Diane E. Skillman, CSR 4909, RPR, FCRR
Pamela Batalo-Hebel, CSR 3593, RMR, FCRR
Raynee Mercado, CSR 8258 RMR, CRR, FCRR

TRANSCRIPT PRODUCED BY COMPUTER-AIDED TRANSCRIPTION

1 For Plaintiff:

CRAVATH, SWAINE & MOORE, LLP
825 Eighth Avenue
New York, New York 10019

2 **BY: LAUREN A. MOSKOWITZ, ESQUIRE**
3 **JUSTIN C. CLARKE, ESQUIRE**
4 **W. WES EARNHARDT, ESQUIRE**
5 **BRENDAN BLAKE, ESQUIRE**
6 **JIN NIU, ESQUIRE**

7 For Defendant:

GIBSON, DUNN & CRUTCHER
333 South Grand Avenue
Los Angeles, California 90071

8 **BY: RICHARD J. DOREN, ESQUIRE**
9 **DAN SWANSON, ESQUIRE**
10 **CYNTHIA RICHMAN, ESQUIRE**
11 **RACHEL BRASS, ESQUIRE**
12 **ARPINE LAWYER, ESQUIRE**

GIBSON, DUNN & CRUTCHER, LLP
2001 Ross Avenue, Suite 1100
Dallas, Texas 75201

13 **BY: VERONICA S. MOYE, ESQUIRE**

14 PAUL WEISS RIFKIND
15 WHARTON & GARRISON LLP
2001 K STREET, NW
Washington, DC 20006

16 **BY: KAREN DUNN, ESQUIRE**
17 **JESSICA E. PHILLIPS, ESQUIRE**

18 For Defendant:

19 PAUL WEISS RIFKIND
20 WHARTON & GARRISON LLP
943 Steiner Street
San Francisco, California 94117

21 **BY: ARPINE LAWYER, ESQUIRE**
22
23
24
25

Plaintiff's Witnesses:**Page****VOL.****Athey, Susan**

Cross-Examination by Ms. Dunn (resumed)

1836

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Redirect Examination by Mr. Even

1864

8

Defendant's Witnesses:**Schmalensee, Richard**

Direct Examination by Mr. Swanson

1876

8

Cross-Examination by Mr. Bornstein

1906

8

Redirect Examination by Mr. Swanson

1990

8

Recross-Examination by Mr. Bornstein

1994

8

Lafontaine, Francine

Direct Examination by Ms. Dunn

2001

8

Cross-Examination by Mr. Bornstein

2028

8

Hitt, Lorin

Direct Examination by Ms. Richman

2073

8

Plaintiff's Exhibits:**EVD.****VOL.****Defendant's Exhibits:****EVD.****VOL.**

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Wednesday, May 12, 2021

8:00 a.m.

7:44:15AM

P R O C E E D I N G S

8:00:11AM

THE COURT: Let's go on the record and see who we

8:00:13AM

have.

8:00:17AM

Ms. Stone.

8:00:19AM

THE CLERK: All right.

8:00:19AM

Calling civil action 20-5640, Epic Games, Inc. versus

8:00:27AM

Apple, Inc.

8:00:27AM

Counsel, please state your appearances.

8:00:29AM

MS. FORREST: Good morning, Your Honor. Katherine

8:00:30AM

Forrest for Epic.

8:00:32AM

THE COURT: Good morning, Ms. Forrest.

8:00:38AM

MR. EVEN: Good morning, Your Honor. Yonatan Even

8:00:38AM

for Epic.

8:00:41AM

THE COURT: Good morning.

8:00:41AM

MS. KLOSS: Good morning, Your Honor. Lauren Kloss

8:00:42AM

for Epic.

8:00:41AM

THE COURT: Good morning.

19

MS. COSCIA: Good morning, Your Honor. Monica Coscia

20

for Epic Games.

8:00:49AM

MR. DIESSEL: Good morning, Your Honor. Ben Diessel

8:00:49AM

for Epic Games.

8:00:49AM

THE COURT: So it's -- we have a new one. Monica

8:00:51AM

Coskia [phonetic]? Is that right?

8:00:52AM

MS. COSCIA: Cosia [phonetic], Your Honor. Yes.

8:00:52AM

Thank you.

8:00:52AM

THE COURT: Okay. And then -- sir, your name again?

8:00:52AM

MR. DIESSEL: Ben Diessel, Your Honor.

8:00:52AM

THE COURT: Hmm. Okay. I didn't have you on my list. How do you spell your last name?

8:00:52AM

MR. DIESSEL: That's D as in David, i-e, double s-e-l.

8:00:52AM

THE COURT: Okay. Good morning.

8:01:18AM

MR. DIESSEL: Morning.

8:01:18AM

THE COURT: Mr. Sweeney, good morning.

8:01:19AM

Mr. Rudd, good morning.

8:01:21AM

MR. RUDD: Good morning.

8:01:21AM

THE COURT: On the Apple side.

8:01:24AM

MR. DOREN: Good morning, Your Honor. Richard Doren for Apple. And we're joined this morning by Heather Grenier, the head of commercial litigation.

8:01:31AM

THE COURT: Okay. Good morning. Welcome back.

8:01:35AM

MS. DUNN: Good morning, Your Honor, Karen Dunn for Apple.

8:01:37AM

8:01:38AM

THE COURT: Good morning.

8:01:38AM

MS. RICHMAN: Good morning, Your Honor. Cynthia Richman for Apple.

8:01:42AM

8:01:43AM

THE COURT: Good morning.

8:01:44AM

MS. DEARBORN: And good morning, Your Honor.

8:01:45AM

Meredith Dearborn for Apple.

8:01:47AM **THE COURT:** Good morning. Ms. Dearborn.

8:01:48AM Mr. Schiller, good morning.

8:01:49AM **MR. SCHILLER:** Good morning, Your Honor.

8:01:51AM **THE COURT:** And Mr. Spalding.

8:01:53AM **MR. SPALDING:** Good morning, Your Honor.

8:01:55AM **THE COURT:** Good morning.

8:01:55AM Okay. Then we have -- I see Ms. Lawyer in the back. I'm
8:02:00AM going to remember your name.

8:02:01AM **MS. LAWYER:** Good morning, Your Honor.

8:02:02AM **THE COURT:** And then we have from the designated pool
8:02:05AM reporters, do we have Sebastian Herrera from *The Wall Street*
8:02:09AM *Journal*. Good morning, sir.

8:02:11AM And then Kellen Browning?

8:02:12AM **MR. BROWNING:** Morning, Your Honor.

8:02:14AM **THE COURT:** Good morning. From the *New York Times*.

8:02:15AM And then from the -- from the class action counsel,
8:02:21AM Mr. Rifkin, are you back? Yes you are.

8:02:25AM **MR. RIFKIN:** Good morning, Your Honor.

8:02:26AM **THE COURT:** Good morning.

8:02:26AM **MR. RIFKIN:** Good morning.

8:02:29AM **THE COURT:** Then we have one other person -- Do we
8:02:30AM know who that is?

8:02:36AM **THE CLERK:** It's the witness back there.

8:02:37AM **THE COURT:** Oh. I didn't -- could not see you that
8:02:39AM far away. Okay.

8:02:40AM Good morning.

8:02:46AM So what do we have in terms of administrative issues to
8:02:49AM address, if anything, this morning?

8:02:50AM Ms. Forrest?

8:02:53AM **MS. FORREST:** Yes, Your Honor.

8:02:53AM One very brief just FYI for the court. The parties have
8:02:59AM conferred with regard to whether class and developer counsel
8:03:04AM can have access to the sealed portions of the transcript which
8:03:07AM have already occurred, should they desire to order those.

8:03:11AM And the parties agree that because they are under the
8:03:14AM protective order, they may.

8:03:15AM **THE COURT:** Okay. So so ordered.

8:03:17AM Mr. Doren, you agree?

8:03:19AM **MR. DOREN:** Agreed, Your Honor.

8:03:19AM **THE COURT:** Okay. Any --

8:03:20AM (Simultaneous colloquy.)

8:03:20AM **THE COURT:** Go ahead.

8:03:21AM **MR. DOREN:** One other point. We had a discussion
8:03:23AM this morning about the written directs of expert witnesses.
8:03:26AM And if it's acceptable to the court, the parties are working
8:03:29AM through the negotiations around the evidence and around other
8:03:32AM redactions. And rather than have them admitted conditionally,
8:03:37AM we thought the parties would complete those negotiations and
8:03:39AM then move to admit after we know what any issues are next
8:03:43AM Monday -- to admit the written directs as -- as a group.

8:03:48AM **THE COURT:** Okay. So the -- I guess the only
8:03:51AM question is whether or not I will need to weigh in. If I do,
8:03:59AM then -- you know, then they're not going to -- they won't get
8:04:07AM admitted on Monday.

8:04:08AM **MR. DOREN:** Agreed, Your Honor.

8:04:08AM But we think we can at least present to the court a -- a
8:04:12AM package with all issues framed to the extent issues remain.

8:04:17AM **THE COURT:** Okay.

8:04:17AM **MS. FORREST:** Agreed, Your Honor. That's -- that's
8:04:19AM the -- the intention.

8:04:21AM **THE COURT:** All right. So -- so that's fine.

8:04:24AM I had -- I've got trial order number 5 in draft form,
8:04:30AM which I will amend to reflect that particular agreement.

8:04:34AM What I was going to ask for in the next trial order,
8:04:37AM because we keep getting these kind of ongoing requests to
8:04:42AM seal, I can tell you usually motions for reconsideration are
8:04:49AM denied unless there's something really very different
8:04:52AM happening that we totally missed.

8:04:56AM But my plan was to order that with respect to exhibits --
8:05:00AM and we can carve this out, I guess -- that we receive any
8:05:05AM motions by 6:00 p.m. on Friday, any third-party motions by the
8:05:11AM next day so that we have the weekend to resolve them.

8:05:17AM Given that this week's entire -- entirely experts or
8:05:21AM pretty much entirely experts, I'm not sure that that makes --
8:05:24AM that there will be much, but I am trying to get ahead of some

8:05:29AM of the constant waves that we're seeing.

8:05:33AM **MS. FORREST:** That timing, Your Honor, we can
8:05:35AM certainly, obviously, meet. And we apologize for the -- for
8:05:39AM the wave. Some of this information has come only to our
8:05:42AM awareness late, but we will comply with that timing.

8:05:46AM **MR. DOREN:** That's fine, Your Honor.

8:05:47AM **THE COURT:** Okay. All right. Thank you very much.
8:05:51AM Anything else?

8:05:53AM **MR. DOREN:** No, Your Honor.

8:05:54AM **MS. FORREST:** No, Your Honor.

8:05:55AM **THE COURT:** Okay. I don't have anything else either.
8:05:57AM And I didn't admit very many exhibits yesterday, so we'll
8:06:03AM defer going over exhibits.

8:06:07AM Professor Athey, you want to come back to the stand? We
8:06:11AM can get started a little bit early.

8:06:14AM Good morning.

8:06:42AM **THE WITNESS:** Good morning, Your Honor.

8:06:43AM **THE COURT:** Okay. So you should have some binders up
8:06:45AM there. Before we get started, do you have the binders from
8:06:49AM yesterday?

8:06:49AM **THE WITNESS:** Yes, these -- there were two binders.
8:06:51AM I have them.

8:06:52AM **THE COURT:** Okay.

8:06:53AM I'll remind you, you're still under oath.

8:06:56AM **THE WITNESS:** Yes.

8:06:58AM **THE COURT:** Ms. Dunn, you may proceed with your
8:07:01AM cross.

8:07:03AM **MS. DUNN:** Thank you, Your Honor.

8:07:03AM For the court reporter, Karen Dunn for Apple.

9:57:46AM **SUSAN ATHEY,**

9:57:46AM called as a witness for the PLAINTIFF, having been duly sworn,
9:57:46AM testified as follows:

8 **CROSS-EXAMINATION (RESUMED)**

9 **BY MS. DUNN:**

10 **Q.** Welcome back, Dr. Athey. Good morning.

8:07:08AM **A.** Good morning.

12 **Q.** So yesterday we left off talking about how the web browser
8:07:13AM is middleware. Do you remember that?

8:07:15AM **A.** Yes.

8:07:15AM **Q.** And you have said that third-party app stores are
8:07:19AM middleware.

8:07:19AM You've said that, correct?

8:07:22AM **A.** Correct.

8:07:23AM **Q.** All right.

8:07:23AM And a store within a store is also middleware, correct?

8:07:27AM **A.** Yes. To -- to be clear, you know, middleware can have
8:07:33AM many characteristics so, you know, different types of
8:07:37AM middleware will -- will function in different ways, so I'm not
8:07:41AM trying to define "middleware" by one of those specific
8:07:43AM examples.

8:07:44AM Q. Okay. But to the extent that you use this --

8:07:47AM A. Yes.

8:07:47AM (Simultaneous colloquy.)

8:07:48AM THE COURT: One at a time, please.

8:07:50AM BY MS. DUNN:

8:07:51AM Q. To the extent that you use this phrase, you would include
8:07:54AM store within a store within your general notion of middleware,
8:07:58AM correct?

8:07:58AM A. Yes.

8:08:01AM Q. And in your opinion, app stores can differentiate by
8:08:07AM specializing in narrow categories of content, like games,
8:08:11AM correct?

8:08:12AM A. Yes.

8:08:13AM Q. And in your report and in your written testimony, you
8:08:18AM provide three case study examples. One is Steam. One is
8:08:22AM GameClub. And one is Epic Game Store, correct?

8:08:27AM A. Yes.

8:08:28AM Q. All right.

8:08:28AM So we'll talk about Steam and GameClub in a moment, but
8:08:31AM first, to be clear, you describe Epic Game Store as a
8:08:35AM personalized gaming-focused multi-platform app store; is that
8:08:39AM right?

8:08:39AM A. Yes.

8:08:43AM Q. And in your written direct testimony, you say that Apple
8:08:50AM excludes multi-platform app stores like Steam, correct?

8:08:54AM A. Yes.

8:08:58AM Q. And in your written direct testimony, you say Steam is a
8:09:02AM specialized multi-platform app store. Users can store their
8:09:07AM purchase content in their Steam Library, store their payment
8:09:10AM methods in their Steam Wallet, chat and text with other users
8:09:13AM in real time with Steam Chat, and that by enabling users to
8:09:19AM access games and purchase game content, Steam reduces users'
8:09:25AM switching and mixing and matching costs, correct?

8:09:27AM A. I don't have it in front of me, but that sounds -- that --
8:09:31AM yes, I agree with the content.

8:09:34AM Q. Great.

8:09:35AM And I'm not --

8:09:35AM A. Yeah.

8:09:36AM Q. It's just for time.

8:09:37AM A. Yes.

8:09:37AM Q. I would be happy to put it up for you.

8:09:39AM A. No problem.

8:09:40AM Q. And in your direct testimony, you said that this is
8:09:42AM available on the Mac, on Windows and on Linux, correct?

8:09:45AM A. Yes.

8:09:47AM Q. Okay. So I'd like to now put on the screen a slide that
8:09:52AM shows what happens when you search Steam in Apple's App Store.

8:09:58AM And I'm asking Mr. Spalding to put that on the screen.

8:10:01AM (Demonstrative published.)

8:10:02AM MS. DUNN: I don't know if your screen looks like

8:10:04AM mine, but the color seems --

8:10:07AM **THE COURT:** Color seems off.

8:10:08AM **MS. DUNN:** -- very purple.

8:10:11AM **THE WITNESS:** Thank you. I see it. Thank you.

8:10:13AM **BY MS. DUNN:**

8:10:14AM **Q.** Okay.

8:10:16AM And I don't know if you can see this, given the --

8:10:21AM **THE COURT:** Is that us, or is that you, Mr. Spalding?

8:10:25AM **MR. SPALDING:** I believe the court.

8:10:31AM **THE COURT:** Okay. We'll try to --

8:10:34AM Do you have a physical copy of this one, Ms. Dunn?

8:10:39AM **MS. DUNN:** We do.

8:10:39AM This is at -- at Defense Exhibit 5621 in your binder.

8:10:49AM **THE COURT:** We'll try to fix that.

8:10:52AM **MS. DUNN:** Thank you, Your Honor.

8:10:52AM (Exhibit published.)

8:10:53AM **MS. DUNN:** All right. So, Dr. Athey, if you turn to
8:10:56AM Defense Exhibit 5621 in your binder.

8:11:00AM **A.** Yes.

8:11:02AM **Q.** So if you look at this screenshot, you can see that we

8:11:05AM search "Steam" in the Apple App Store. "Steam" is in the

8:11:09AM search bar. And you can see that what comes up are three

8:11:12AM Steam native apps available in the App Store. One is called

8:11:16AM Steam Mobile. One is called Steam Link. And the third is

8:11:20AM called Steam Chat.

8:11:20AM Do you see that?

8:11:21AM A. Yes.

8:11:23AM Q. Okay. Now, if you'll turn to Defense Exhibit 5616.

8:11:34AM (Exhibit published.)

8:11:35AM BY MS. DUNN:

8:11:36AM Q. This is a screenshot from Steam's website about Steam
8:11:39AM Mobile. And it describes Steam Mobile, which it also calls
8:11:49AM "the Steam App," and you can see in the screenshot there's a
8:11:54AM picture of an iPhone and an Android phone.

8:11:57AM Do you see that?

8:11:57AM A. Yes.

8:11:58AM Q. All right. It also says you can download the Steam App on
8:12:02AM the App Store and on Google Play.

8:12:04AM Do you see there at the bottom?

8:12:07AM A. Yes.

8:12:08AM Q. Okay. And towards the top, it says that with the app, you
8:12:12AM can manage your account, shop, and stay up to date with games
8:12:16AM in the community.

8:12:17AM Do you see that?

8:12:18AM A. Yes.

8:12:22AM Q. Okay. And so prior to your report, were you aware that
8:12:27AM this app existed?

8:12:45AM A. (Reviewing document.)

8:12:45AM Sorry. I'm just trying read all the -- all the material
8:13:19AM here with the different apps. These --

8:13:21AM Q. I'm just --

8:13:22AM A. I'm sorry.

8:13:23AM Q. -- asking at this point about the Steam Mobile app.

8:13:25AM Were you aware prior to your report that this app existed?

8:13:33AM A. (Reviewing document.)

8:13:33AM Yes.

8:13:40AM Q. Yet you did not mention this in your report or in your
8:13:43AM testimony; is that correct?

8:13:44AM A. This -- sorry.

8:13:50AM Q. Dr. Athey, this is just a "yes" or "no."

8:13:52AM This is not mentioned in your report, and it was not
8:13:55AM mentioned in your testimony, either your written direct
8:13:58AM testimony or in your testimony yesterday, correct?

8:14:00AM A. My testimony describes the functionality, but I -- I
8:14:09AM didn't specifically describe this app.

8:14:11AM Q. Right. You did not mention that there is an app in the
8:14:14AM App Store called Steam Mobile, correct?

8:14:16AM A. Correct.

8:14:18AM Q. And you did not mention that there was an app in the App
8:14:20AM Store called Steam Link, correct?

8:14:23AM A. Correct.

8:14:24AM Q. And you did not mention, just to finish this out, that
8:14:27AM there's an app in the App Store called Steam Chat, correct?

8:14:31AM A. Correct.

8:14:31AM Q. And yet you say you were aware of this before yesterday,

8:14:35AM correct?

8:14:35AM **A.** Yes.

8:14:36AM **Q.** Okay.

8:14:37AM All right. So --

8:14:40AM **THE COURT:** So, Ms. Stone, I -- I'm being told that
8:14:43AM we have to restart the system, so let's put a pause on your
8:14:47AM clock. And we should go ahead and reboot it.

8:14:52AM **THE CLERK:** Okay. All right.

8:14:53AM **MS. DUNN:** Thank you, Your Honor.

8:14:57AM (Pause in the proceedings.)

8:15:31AM **THE COURT:** So while we're waiting here, if I had a
8:15:34AM jury, I would tell some kind of joke and they would laugh
8:15:37AM because I'm a judge and I'm -- even though I'm not funny.

8:15:41AM But I do want to correct for the record -- I know there
8:15:44AM are lots -- lots of people are taking -- they're all trying to
8:15:52AM figure out who all of us are. I don't want to be in trouble
8:15:55AM with my son, so I'll tell everybody he's an aerospace
8:15:59AM engineer, not an aeronautical engineer. I'd like the record
8:16:03AM globally to be corrected. He's an aerospace engineer. I
8:16:06AM misspoke one day and, apparently, that got picked up, so
8:16:09AM really don't want to be in trouble with him.

8:16:11AM So okay. Now we have our thing back.

8:16:14AM Thanks for that.

8:16:15AM **MS. DUNN:** Thank you, Your Honor.

8:16:16AM **THE COURT:** All right. Ms. Dunn, proceed.

8:16:18AM

BY MS. DUNN:

8:16:19AM

Q. All right. Dr. Athey, are you aware that users can buy games and manage their Steam Wallet account through this app?

8:16:24AM

8:16:35AM

A. So this -- this app allows you, as it says on the -- on the exhibit, to browse the Steam catalog of Windows, Mac, and Linux titles from your phone.

8:16:41AM

8:16:48AM

8:16:51AM

Q. Right. I'm not asking you to read the screen. I'm just asking you to tell me whether you're aware that users can buy games and manage their Steam Wallet account through this app.

8:16:53AM

8:16:57AM

8:17:00AM

That's the question.

8:17:03AM

8:17:06AM

A. And -- I think the clarification is that they -- they can't buy games -- they can't buy iOS games. They can buy Windows, Mac, and Linux games, which are games.

8:17:10AM

8:17:14AM

Q. Right.

8:17:14AM

8:17:17AM

And you're aware, aren't you, even though it doesn't say so here, that users can manage their Steam Wallet account through this app, correct?

8:17:20AM

8:17:21AM

A. Yes.

8:17:30AM

Q. All right.

8:17:30AM

8:17:36AM

Let's move to the Steam Link app in the App Store, so I'll ask you to turn to Defense Exhibit 5617.

8:17:41AM

(Exhibit published.)

8:17:44AM

BY MS. DUNN:

8:17:44AM

8:17:48AM

Q. Now, 5617 -- excuse me -- is a Tweet that Steam sent out when they launched Steam Link. This Tweet from Steam says the

8:17:53AM Steam Link app is now available for free on all iOS and -- for
8:17:57AM all iOS and Apple TV users. The app allows gamers to stream
8:18:04AM their Steam library to their iPhone, iPad, and Apple TV.

8:18:08AM And you can see on this Tweet that there's a picture of a
8:18:12AM person playing Steam games on their iPhone using a controller
8:18:16AM attachment, which are available in the market today.

8:18:18AM You see that, correct?

8:18:19AM A. Yes.

8:18:21AM Q. Okay.

8:18:21AM And are you aware that through Steam Link, iOS users can
8:18:30AM play Steam games on their iPhones and iPads through Steam
8:18:33AM Link, which is an app on iOS.

8:18:36AM You're aware of that.

8:18:40AM A. Yes.

8:18:41AM Q. Right.

8:18:41AM And you said that you were aware prior to yesterday that
8:18:45AM this existed; is that -- that's what you said?

8:18:47AM A. Yes.

8:18:49AM Q. Okay.

8:18:50AM All right. Will you turn to Exhibit 5622.

8:18:54AM (Exhibit published.)

8:19:02AM BY MS. DUNN:

8:19:03AM Q. All right. 5622 is a screenshot also from the Steam
8:19:06AM website, and it describes Steam Link in more detail. And it
8:19:10AM says -- if you look under the word "install," it says "install

8:19:13AM the App to play your Steam games."

8:19:15AM And then in extremely small print, it says under "Steam
8:19:20AM Link," "stream games from your computer with Steam."

8:19:25AM Do you see that?

8:19:25AM **A.** Yes, I can see that.

8:19:31AM **Q.** Okay. That's in -- in the -- it's written there in the
8:19:34AM mobile device. You see that?

8:19:35AM **A.** I can see it, yes.

8:19:37AM **Q.** Okay.

8:19:37AM And on the right, it says "extend your Steam gaming
8:19:42AM experience to your mobile device, TV, or other PC. All you
8:19:46AM need is a local network or an Internet connection. In
8:19:50AM addition, Steam Link App now supports remote play together.
8:19:54AM Now you can join games hosted on a friend's PC just by
8:19:59AM clicking a link," correct?

8:20:00AM You see that.

8:20:02AM **A.** Yes.

8:20:02AM **Q.** Okay.

8:20:02AM And this also was not mentioned in your report, your
8:20:05AM written direct testimony, or your testimony yesterday,
8:20:07AM correct?

8:20:08AM **A.** So my report describes the overall set of features
8:20:18AM associated with Steam. But the -- the details of -- of
8:20:26AM streaming from your own PC on to your device, I -- I don't
8:20:32AM believe I've -- I put in those details, although I'd need to

8:20:36AM check to be sure.

8:20:37AM Q. Right.

8:20:37AM And you -- all those details you mentioned, the ones that
8:20:40AM you described, like using Steam Wallet, purchasing games,
8:20:44AM playing your Steam games, that you can do through these apps
8:20:50AM in the App Store, that was not mentioned in your report.

8:20:53AM There's no place where you say Steam has apps in the App
8:20:55AM Store, correct?

8:21:00AM A. So I would need to review to see exactly what's there.

8:21:07AM I've referenced the -- the Steam documentation and so on.

8:21:13AM But I would need to -- to -- to double-check to see
8:21:17AM exactly which details are -- are included.

8:21:20AM Q. Okay. Do you have any idea how many times a day Steam
8:21:22AM Link is downloaded?

8:21:24AM A. I don't know that number now.

8:21:28AM Q. Okay.

8:21:29AM If you'll turn to Defense Exhibit 5601.

8:21:33AM (Exhibit published.)

8:21:34AM BY MS. DUNN:

8:21:34AM Q. -- in your binder. And if you -- it's an article called
8:21:40AM "75 Steam statistics from 2019 and 2020."

8:21:44AM This is actually one of the source materials for your
8:21:49AM report. It's footnote 62 to paragraph 36, I believe.

8:21:56AM And according to this source material, it says that Steam
8:22:00AM Link, which allows users -- this is on page 3 -- it says that

8:22:06AM Steam Link, which allows users to play games on their mobile
8:22:10AM devices, has been installed 2 million times.

8:22:12AM Do you see that?

8:22:13AM A. Yes.

8:22:16AM Q. And right beneath that, it says, on average Steam Link is
8:22:20AM downloaded at around 52,000 times daily.

8:22:22AM Do you see that?

8:22:23AM A. Yes.

8:22:24AM Q. Okay.

8:22:25AM And so you don't have any reason to -- to disagree with
8:22:29AM that, do you?

8:22:29AM A. No.

8:22:34AM Q. Okay. If we could go to Defense Exhibit 5623.

8:22:38AM (Exhibit published.)

8:22:39AM BY MS. DUNN:

8:22:41AM Q. This is a screenshot of Steam Chat also from the Steam
8:22:45AM website. This is another app that you can download from the
8:22:50AM App Store and on Google Play.

8:22:53AM You can see the icons that say "download on the App Store"
8:22:57AM and "get it Google play."

8:22:58AM You see that?

8:23:00AM A. Yes.

8:23:00AM Q. All right. And Steam Chat, it says, is a lightweight app
8:23:04AM focused on chatting with friends and groups.

8:23:06AM You see that?

8:23:07AM

A. Yes.

8:23:08AM

Q. It offers rich chat, which always makes me think of

8:23:13AM

Mr. Doren.

8:23:14AM

Do you see that?

8:23:15AM

A. I'm sorry. Rich chat.

8:23:19AM

Q. Rich chat.

8:23:19AM

A. Yes. Yes.

8:23:20AM

Q. Okay.

8:23:20AM

And with Steam -- with the Steam Chat App, users can

8:23:25AM

accept invites and then play with their friends in Steam Link

8:23:29AM

on their iPhone.

8:23:29AM

Are you aware of that?

8:23:31AM

A. Yes.

8:23:32AM

Q. Okay. And, in fact, that's what's happening in this image

8:23:36AM

over here on the iPhone, it says, "Ben from school has invited

8:23:41AM

you to play, and all you need to do is click that link and

8:23:45AM

you're in the game."

8:23:46AM

Do you see that?

8:23:49AM

A. I see that you can accept the invite from your personal

8:23:51AM

computer, PC.

8:23:53AM

Q. Right.

8:23:53AM

So you're not aware that if you click the link, you're in

8:23:56AM

the game?

8:23:56AM

A. If -- if I have a PC with me. Not if I'm at school if --

8:24:04AM

if I'm a kid or if I'm in the bus. But if I was using a PC

8:24:10AM and had that available.

8:24:13AM Q. Well, Dr. Athey, you've never used this, correct?

8:24:19AM A. I've used Steam. But I haven't used Steam Chat.

8:24:23AM Q. Right. Or Steam Link.

8:24:23AM And if you had used them, you would know actually that you
8:24:27AM don't need your PC with you. Your PC could be anywhere to do
8:24:31AM this, so --

8:24:34AM A. So -- I'm sorry. I just -- I'm reading from the side,
8:24:37AM "you can accept this invite from your PC." So the -- the game
8:24:42AM is being run in the PC. The game -- the PC needs to be on if
8:24:47AM it's -- you know, to -- to use this functionality.

8:24:51AM So you need to have the -- if you're streaming a game from
8:24:56AM your PC, the PC is involved.

8:25:00AM Q. But it -- but you said --

8:25:02AM A. Correct.

8:25:02AM Q. -- it needs to be with you. And that is not correct.

8:25:05AM Are you aware of that?

8:25:06AM A. So if it's -- you need to be able to have it on. So if
8:25:11AM you -- if -- yeah, if you have a laptop, for example, you
8:25:15AM would need to be able to turn on your laptop, so I suppose if
8:25:19AM you -- you know, if you've -- if laptop isn't being used by
8:25:25AM anybody else and it's been -- it's been left on, that would be
8:25:28AM a different scenario.

8:25:29AM But if you're -- if you were carrying your laptop -- if
8:25:33AM your laptop is in your locker or if your laptop is in your

8:25:37AM briefcase and it's off, then you can't -- you -- you would
8:25:41AM need to make it available for that purpose.

8:25:43AM **Q.** Right.

8:25:43AM And I'm just saying you had said you need to have it with
8:25:47AM you. That's not correct.

8:25:48AM And if you don't know, it's okay.

8:25:50AM **A.** Sorry. So you --

8:25:54AM **Q.** I'm just asking --

8:25:55AM **A.** Yes.

8:25:56AM **Q.** -- whether you know that you don't need to have it with
8:25:59AM you?

8:26:00AM **A.** Not necessarily. Depends on the circumstance.

8:26:02AM **THE COURT:** She's a professor at Stanford. She
8:26:04AM can -- there isn't any harassment going on here, Mr. Even,
8:26:08AM so --

8:26:10AM **MR. EVEN:** Okay.

8:26:11AM **THE COURT:** So she can the answer questions, or she
8:26:15AM can argue the way she is. There's nothing objectionable.
8:26:18AM This is cross-examination.

8:26:19AM **MS. DUNN:** Thank you, Your Honor.

8:26:20AM **Q.** Dr. Athey, do any other companies have technologies like
8:26:25AM Steam Link?

8:26:33AM **A.** So if you're asking is it possible -- if you're talking
8:26:36AM about, like, a functionality to do remote desktop, yes.

8:26:41AM **Q.** Okay.

8:26:41AM And so you must be aware that Playstation and XBox both
8:26:46AM have native Apps on the iOS that allow playing of their games.

8:26:52AM You're aware of that?

8:26:53AM **A.** Again, that's a -- that's a broad statement, so there are
8:26:59AM specific ways that you could, for example, play a game on a
8:27:04AM device that you own and -- and through a -- this kind of
8:27:10AM remote-desktop-type functionality.

8:27:14AM **Q.** Okay.

8:27:15AM I'd just like to put on the screen, and then we can move
8:27:19AM on, DX5624. This is Playstation's remote play from
8:27:25AM Playstation.com.

8:27:27AM Do you see that?

8:27:27AM (Exhibit published.)

8:27:28AM **THE WITNESS:** Yes.

8:27:28AM **BY MS. DUNN:**

8:27:28AM **Q.** Okay.

8:27:28AM And then if we can just put up Defense Exhibit 5620.

8:27:33AM (Exhibit published.)

8:27:33AM **BY MS. DUNN:**

8:27:34AM **Q.** This is Microsoft's XBox remote play, which shows somebody
8:27:39AM playing with a controller on a iPhone.

8:27:40AM Do you see that?

8:27:41AM **A.** Yes.

8:27:41AM **Q.** Okay.

8:27:42AM All right. Dr. Athey, moving on from Steam, your third

8:27:46AM example is GameClub, which is currently available as a native
8:27:49AM App on iOS, correct?

8:27:51AM **A.** Yes.

8:27:53AM **Q.** All right.

8:27:53AM And if you'll turn in your binder to Defense Exhibit 5608.

8:27:58AM (Exhibit published.)

8:28:00AM **BY MS. DUNN:**

8:28:00AM **Q.** On page 2.

8:28:01AM **A.** (Reviewing document.)

8:28:09AM **Q.** And I'm just reading from the description here. This is
8:28:11AM from GameClub's press kit.

8:28:14AM They say that GameClub is the all-you-can-play
8:28:17AM subscription home for mobile's top premium games, delivering
8:28:21AM unlimited exclusive access to over a hundred universally
8:28:25AM acclaimed titles, playable on both iOS and Android with new
8:28:30AM games added every week. These games are optimized for the
8:28:34AM latest mobile devices and have no apps or in-app purchases as
8:28:39AM part of a single subscription that can be shared with up to 12
8:28:43AM family members.

8:28:43AM And you can see at the end, that costs 4.99 a month, and a
8:28:48AM GameClub subscription, it says, is completely cross-platform
8:28:53AM with a single log-in that works anywhere.

8:28:55AM Do you see that?

8:28:55AM **A.** Yes. I believe that's the way I described it in my
8:28:59AM report.

8:29:00AM Q. I agree with that.

8:29:02AM You also know that one GameClub account carries over
8:29:07AM across both Android and iOS, correct?

8:29:10AM A. Yes, that's a key feature.

8:29:12AM Q. Right.

8:29:12AM And you also know that GameClub has family-sharing, which
8:29:15AM means a user can buy a game on iOS, and then their kids can
8:29:18AM play on Android or vice versa, correct?

8:29:21AM A. Absolutely. Again, that's a key feature.

8:29:24AM Q. Right.

8:29:25AM And GameClub is a direct competitor to Apple Arcade, and
8:29:32AM GameClub is available in the App Store today, correct?

8:29:35AM You agree with that.

8:29:37AM A. Yes.

8:29:40AM Q. You take --

8:29:40AM A. I'm sorry. I -- it's -- I mean, I didn't perform a full
8:29:46AM analysis of the substitution between the two, but, you know,
8:29:50AM at a high level, yes.

8:29:52AM Q. Okay.

8:29:52AM But in your deposition, you agreed that GameClub competes
8:29:57AM directly with Apple Arcade.

8:29:57AM You remember that?

8:29:59AM A. Yes.

8:30:00AM Q. Okay.

8:30:00AM You do take issue, however, with the requirement that each

8:30:03AM game be individually downloaded, which you refer to as a
8:30:06AM friction.

8:30:06AM That's true.

8:30:07AM A. Correct.

8:30:09AM Q. Okay.

8:30:10AM So first of all, are you aware that Apple Arcade, Apple's
8:30:16AM competing product, also requires individual download?

8:30:19AM A. I'm -- I'm sorry. You're -- you're asking whether Apple
8:30:36AM Arcade's -- sorry.

8:30:37AM Can you restate the question?

8:30:39AM Q. I'm happy to. It was, I'm sure, poorly formed.

8:30:42AM So Apple has a competing product called Apple Arcade?

8:30:45AM A. Yes.

8:30:46AM Q. And you're aware that Apple Arcade also requires
8:30:49AM individual download of games.

8:30:59AM A. So -- yes.

8:31:15AM Q. And your testimony is that there are unnecessary frictions
8:31:17AM because there might be large incremental costs between one
8:31:22AM click and two clicks, correct?

8:31:23AM A. Yes.

8:31:29AM Q. Right.

8:31:29AM But you've done nothing to measure what the cost might be
8:31:32AM of those frictions that you've described, correct?

8:31:35AM A. Not specifically for the purpose of this case.

8:31:42AM Q. There's some measurement that you did that you didn't

8:31:45AM include?

8:31:45AM A. I guess if the question is, you know, have I ever measured
8:31:50AM frictions from -- from clicks or other types of frictions
8:31:55AM in -- in my research or in my industry experience, you know,
8:32:00AM yes, I have.

8:32:01AM But I didn't perform that specifically for this case.

8:32:04AM Q. Okay. So you agree that they're not part of your
8:32:07AM testimony.

8:32:08AM A. I agree with that. Yes.

8:32:09AM Q. Okay.

8:32:09AM And at the time that you submitted your report and by the
8:32:12AM time of your deposition, you hadn't ever used GameClub,
8:32:16AM correct?

8:32:16AM A. No, I've not used GameClub.

8:32:19AM Q. Okay.

8:32:19AM So I'm going to ask Mr. Spalding to pull up on the screen
8:32:27AM GameClub.

8:32:27AM (Demonstrative published.)

8:32:29AM **BY MS. DUNN:**

8:32:29AM Q. And we found a game in here that we thought looked good.
8:32:33AM It's called Hatch. And I'm going to ask Mr. Spalding to click
8:32:37AM on it within GameClub. So if he clicks "play now," we go --
8:32:42AM what happens is -- that's the -- the "play now" is what you
8:32:46AM click, and then you're directed in the App Store to the app
8:32:53AM for Hatch so that you can individually download it.

8:32:56AM Do you see that?

8:32:57AM **A.** Yes.

8:33:00AM **Q.** All right.

8:33:01AM And I want to talk to you, Dr. Athey, just for a few
8:33:04AM minutes about this screen that you see when you -- when you
8:33:07AM click to individually download.

8:33:08AM So you can see a page from the App Store pops up. And
8:33:11AM then at the top, there's information for the users about
8:33:15AM ratings, about what age the app is appropriate for. Here it
8:33:19AM says "four plus." What kind of game it is. Here it says it's
8:33:24AM simulation game. Who the developer is.

8:33:26AM And if Mr. Spalding scrolls to the right, we'll see -- you
8:33:29AM can also see what language it's in and how much size it's
8:33:33AM going to take up on your device.

8:33:36AM Do you see that?

8:33:36AM (Demonstrative published.)

8:33:36AM **THE WITNESS:** Yes.

8:33:36AM **BY MS. DUNN:**

8:33:36AM **Q.** Okay. And if you scroll down, you can see if there's
8:33:39AM something new in the game. You can see a preview. You can
8:33:42AM see the actual ratings and reviews. There's a section on app
8:33:48AM privacy, and -- and this is common to apps in the App Store,
8:33:52AM where it tells you what privacy issues might be implicated by
8:33:58AM the app.

8:33:59AM If you scroll down, Mr. Spalding, you can see that there's

8:34:04AM other information that's listed, including the seller of the
8:34:09AM game, the size, the category, compatibility -- this says it
8:34:14AM works on the iPhone -- again languages, the age rating,
8:34:18AM whether in-app purchase is involved, what's the status of the
8:34:23AM copyright.

8:34:23AM (Demonstrative published.)

8:34:23AM **BY MS. DUNN:**

8:34:23AM **Q.** There's even a link for the developer website which you
8:34:27AM can click and it would go there, and then privacy policy.

8:34:32AM And at the bottom, you can see if there are more games by
8:34:35AM that developer.

8:34:38AM Do you see all of that?

8:34:39AM **A.** Yes.

8:34:40AM **Q.** Okay.

8:34:40AM And you would agree with me, I presume, that there may be
8:34:44AM a benefit to users in receiving this information, like for
8:34:48AM example, whether the game is appropriate for ages four and up,
8:34:53AM correct?

8:34:57AM **A.** (Reviewing document.)

8:34:57AM So if -- if you're asking is -- about the way in which
8:35:01AM this information is presented, I think there can be many ways
8:35:05AM to make sure that users have this information. The
8:35:09AM information itself is useful as -- as far as -- as far as I
8:35:13AM know.

8:35:14AM **Q.** Right.

8:35:14AM I -- I'm not -- I -- that's fair. I'm not asking you
8:35:19AM whether there's a different way to do it or a way you might
8:35:22AM prefer. I'm just asking whether you can acknowledge that
8:35:24AM there's a benefit to users in being able to receive this
8:35:27AM information.

8:35:31AM **A.** Receiving the information is -- is, from my -- from my
8:35:38AM knowledge, these -- this kind of information would be valuable
8:35:41AM to consumers, and having it well organized and -- and -- would
8:35:49AM also be something that users might value; although I haven't
8:35:53AM specifically analyzed, you know, individual pieces of this
8:35:57AM information.

8:35:57AM **Q.** Right. And I appreciate that.

8:35:58AM And I think you also might acknowledge that this also
8:36:04AM enables the developer to advertise other features to talk
8:36:10AM about other games it has and to convey information to the
8:36:14AM user.

8:36:14AM You would agree with that, correct?

8:36:16AM **A.** So I think the -- there's constraints on the -- here on
8:36:30AM the way that the developer provides that information. But the
8:36:33AM screen includes that information in -- in this case.

8:36:37AM **Q.** Including a link to the develop -- developer's own
8:36:40AM website, correct?

8:36:41AM You saw that part.

8:36:42AM **A.** Yes.

8:36:47AM **Q.** Okay.

8:36:49AM All right. Dr. Athey, your opinion is critical on
8:36:53AM restrictions to interoperability.

8:37:00AM (Simultaneous colloquy.)

8:37:02AM **BY MS. DUNN:**

8:37:02AM **Q.** Strike that.

8:37:03AM Your opinion is critical of restrictions on
8:37:07AM interoperability.

8:37:11AM **A.** That -- that's a broad statement, but the -- so I -- I'm
8:37:24AM not -- I haven't said that operating systems need to be the
8:37:29AM theme if -- if that's what you're asking.

8:37:33AM But there are certain types of interoperability that would
8:37:37AM be beneficial.

8:37:39AM **Q.** Okay. So you say the inability to mix and match across
8:37:42AM devices with different operating systems because of limited
8:37:45AM interoperability and synchronization of apps and services
8:37:51AM creates what I call an app barrier to mixing and matching,
8:37:54AM correct?

8:37:55AM **A.** Yes.

8:37:55AM **Q.** And that seems critical of restrictions on
8:37:57AM interoperability, does it not?

8:37:59AM **A.** Yes.

8:38:01AM **Q.** All right.

8:38:01AM And in your written testimony, you've said users do not
8:38:06AM benefit from frictions to switching.

8:38:08AM Do you remember that sentence in your written testimony?

8:38:12AM A. Yes.

8:38:13AM Q. At paragraph 52.

8:38:15AM A. Okay.

8:38:15AM Q. Okay.

8:38:15AM And that's not a qualified statement you make in paragraph
8:38:19AM 52, which I can show to you.

8:38:25AM A. So the -- the sentence is in the context of the -- of the
8:38:31AM setting that I'm describing.

8:38:35AM Q. All right.

8:38:35AM So you disagree, Dr. Athey, that technical --
8:38:41AM technological incompatibilities can increase competition by
8:38:46AM providing consumers a choice.

8:39:02AM A. So that's a -- to -- to state -- to state the proposition
8:39:07AM would be that consumers can be offered choices of -- between
8:39:16AM different technologies, and having different technologies is a
8:39:23AM potential benefit for consumers.

8:39:26AM Q. We definitely agree on that.

8:39:28AM My question is whether you disagree with that
8:39:32AM technological incompatibilities can increase competition by
8:39:38AM providing consumers a choice.

8:39:49AM A. So a sentence like that would need to be taken in context.

8:39:52AM So are you talking about incompatibility for its own sake
8:39:58AM so the -- the phrasing of the sentence says "by providing
8:40:00AM consumers a choice," which I think implies that there's
8:40:05AM something that the consumer would choose, that there would --

8:40:10AM something that they would value?

8:40:12AM So, again, I -- I think if I was trying to -- that's not a
8:40:16AM very precisely worded sentence without context around it,
8:40:23AM but -- but I think I answered your question.

8:40:30AM Q. Sort of.

8:40:32AM So what I'm saying is technological incompatibilities can
8:40:38AM increase competition because they give consumers a choice.

8:40:42AM Do you agree with that?

8:40:44AM A. I guess with the word "can" would -- could -- would refer
8:41:00AM to the context in which a sentence like that is being stated,
8:41:03AM so yes.

8:41:06AM Q. All right.

8:41:06AM In your opinion, a failure to provide interoperability
8:41:10AM could be illegal conduct. That's your opinion.

8:41:18AM A. There are situations -- and -- and my understanding is
8:41:22AM there are -- have been situations where a dominant firm has
8:41:28AM been found to engage in illegal conduct around issues of
8:41:34AM interoperability.

8:41:36AM Q. Right.

8:41:36AM And it's your opinion that forced interoperability could
8:41:38AM be a remedy in some antitrust cases, correct?

8:41:41AM A. I want to make sure we're clear on the term
8:41:46AM "interoperability," but --

8:41:49AM **THE COURT:** Mr. Even, if you have an objection, just
8:41:52AM say it "objection."

8:41:54AM **MR. EVEN:** Okay, Your Honor.

8:41:55AM **THE COURT:** Because Ms. Dunn isn't looking behind
8:41:58AM herself and she can't see you standing.

8:42:00AM **MR. EVEN:** I will do, Your Honor. I was just trying
8:42:02AM not to interrupt Ms. Dunn, but I do want to lodge an objection
8:42:05AM that I think we're venturing far into legal opinion realm.

8:42:10AM **THE COURT:** Okay. So -- and the other thing is if
8:42:12AM you don't object after the question, then the witness is going
8:42:16AM to answer. So I can see you standing, but you need to object.

8:42:22AM I certainly am not taking her testimony as legal opinion.

8:42:26AM I don't know what the point of this, Ms. Dunn. So if you
8:42:30AM can rephrase with the point.

8:42:35AM **MS. DUNN:** Sure. This was a discussion that we had
8:42:38AM with Dr. Athey in her deposition about forced
8:42:41AM interoperability, so I -- mainly just trying to discuss that
8:42:44AM with Dr. Athey.

8:42:47AM **Q.** And I guess my -- my only question here is whether it is
8:42:51AM your view that forced interoperability should be a remedy in
8:42:56AM this case?

8:42:59AM **MR. EVEN:** Same objection, Your Honor.

8:43:02AM **THE COURT:** Well, have you expressed an opinion on
8:43:05AM forced interoperability?

8:43:06AM **THE WITNESS:** So I -- that --

8:43:12AM **THE COURT:** I just want to know, have you expressed
8:43:14AM an opinion?

8:43:15AM **THE WITNESS:** No.

8:43:19AM **THE COURT:** Okay.

8:43:21AM **THE WITNESS:** It -- well, let me make sure I -- can I
8:43:24AM understand the question? So my -- in my -- my summary of
8:43:27AM opinions does not -- does not use the term "forced
8:43:35AM interoperability."

8:43:35AM I'm trying to understand, you know, the -- the question
8:43:38AM and the -- the bounds of the term which would be important to
8:43:42AM be precise.

8:43:43AM So my opinion, which I tried to state clearly, was about
8:43:52AM restrictions on middleware. And so removing those
8:43:57AM restrictions would be, in my opinion, beneficial for consumers
8:44:03AM and developers. So that -- my -- my opinion was about how
8:44:08AM changing restrictions would affect consumers and -- and
8:44:13AM developers.

8:44:14AM **BY MS. DUNN:**

8:44:16AM **Q.** Right.

8:44:16AM And my question is since you used the word
8:44:18AM "interoperability" throughout your report and your testimony,
8:44:22AM whether you understand that what Epic is asking for in this
8:44:26AM case is for Apple to make its products interoperable.

8:44:30AM **A.** So, again, when I'm using the term "interoperability," I'm
8:44:36AM using it in the context of a specific restriction or the
8:44:39AM specific experiences of -- of a consumer, so I'm -- I'm
8:44:44AM concerned with the -- the breadth of your language, that it --

8:44:49AM it -- you know, am I saying that the -- you know, is
8:44:57AM everything about Android the same as everything about the
8:44:59AM iPhone, or would -- should it be that apps that run on Android
8:45:06AM also run on iPhone.

8:45:07AM So there's -- you know, without more context and
8:45:10AM specificity, that term could be -- you know, saying you should
8:45:14AM have forced interoperability could be interpreted in a lot of
8:45:19AM different ways. So I've tried to be specific about what kinds
8:45:24AM of interoperability would be beneficial. And I gave specific
8:45:30AM examples of those, which I could give again if you -- if it's
8:45:34AM not clear.

8:45:35AM Q. No. That's unnecessary.

8:45:36AM Your Honor, I pass the witness.

8:45:38AM THE COURT: Redirect.

8:45:39AM REDIRECT EXAMINATION

8:45:43AM BY MR. EVEN:

8:46:01AM Q. Good morning, Professor Athey.

8:46:03AM A. Good morning.

8:46:04AM Q. I want to ask you a few questions about some of the
8:46:06AM questions that Ms. Dunn presented today and yesterday.

8:46:12AM And let's start with the last point about
8:46:18AM interoperability. Have you given any opinions in your reports
8:46:21AM or in your direct about any duty on Apple to make any of its
8:46:28AM own software available on Android, for instance?

8:46:31AM A. No.

8:46:44AM Q. Ms. Dunn asked you some questions about something called
8:46:46AM GameClub.
8:46:47AM Do you remember that?
8:46:48AM A. Yes.
8:46:48AM Q. And she said GameClub is available now on the iOS?
8:46:54AM A. Yes.
8:46:58AM Q. Do you remember from your report whether GameClub's entry
8:47:05AM into iOS was smooth?
8:47:07AM A. No. In my report, I mention that GameClub's application
8:47:13AM to the App store was rejected more than 100 times.
8:47:17AM Q. And can GameClub under Apple's current restrictions offer
8:47:23AM any and all games?
8:47:26AM A. No.
8:47:27AM Q. What kind of games can GameClub offer?
8:47:29AM A. So GameClub needs to have an exclusive license to its
8:47:36AM games, and so it -- it can't offer -- the restrictions
8:47:40AM preclude third-party games, so there -- these are contractual
8:47:47AM restrictions not related to the -- you know, the game itself
8:47:51AM but whether the game developer has a contract with someone
8:47:54AM else.
8:47:57AM Q. Turning to Steam, you mentioned Steam on your direct
8:48:02AM testimony as a -- an example of a cross-platform app store,
8:48:05AM correct?
8:48:06AM A. Yes.
8:48:06AM Q. And if I remember correctly, you pointed out that it's

8:48:10AM something that you can download apps on to one operating

8:48:14AM system and then port them to another operating system, right?

8:48:19AM **A.** That -- the -- that -- what the -- want to be careful with

8:48:30AM the word "port," but as a user, you can -- say, if you switch

8:48:34AM from a Mac to a PC or from a PC to the Mac, it facilitates

8:48:40AM your downloading the game on whichever -- either platform and

8:48:43AM playing it on that platform.

8:48:45AM **Q.** And you mentioned yesterday that you can do that as a

8:48:47AM one-stop shop through something like Steam, correct?

8:48:50AM **A.** Correct.

8:48:51AM **Q.** And Ms. Dunn showed you the Steam app on iOS. Can you

8:49:01AM download iOS games through the Steam app?

8:49:04AM **A.** On the iOS, no.

8:49:06AM **Q.** Can you download Android games through the Steam store

8:49:11AM through the app on Android?

8:49:13AM **A.** No.

8:49:20AM **Q.** And Ms. Dunn also asked you a few questions about Steam

8:49:23AM Link, which allows you to, as we put it, stream games on to

8:49:28AM your mobile device.

8:49:31AM Where is this streaming from?

8:49:33AM **A.** From your PC.

8:49:35AM **Q.** And so you would need both the PC running the game and

8:49:39AM your phone?

8:49:39AM **A.** Correct.

8:49:58AM **Q.** Want to turn to a couple of things that you were asked

8:50:01AM

yesterday.

8:50:02AM

You were asked a few questions about your work for

8:50:06AM

Microsoft.

8:50:06AM

Do you remember that?

8:50:07AM

A. Yes.

8:50:11AM

Q. And you remember that counsel for Apple asked you even

8:50:16AM

though it was your relationship with Microsoft that prevented

8:50:19AM

you from looking at Apple's confidential documents, you didn't

8:50:22AM

think you should disclose that on your C.V.

8:50:26AM

Do you remember being asked that question?

8:50:27AM

A. Yes.

8:50:46AM

Q. And you said yesterday that what prevented you from

8:50:49AM

looking at Apple's confidential documents was what you

8:50:51AM

referred to as a W2 work for Microsoft.

8:50:55AM

Do you recall that?

8:50:56AM

A. Yes.

8:50:57AM

Q. And by "W2," I -- I assume you meant that you were an

8:51:02AM

employee of Microsoft, correct?

8:51:04AM

A. Correct.

8:51:07AM

Q. When were you an actual employee of Microsoft?

8:51:10AM

A. So the employment relationship comes through the Microsoft

8:51:18AM

research visiting researcher program, which is something like

8:51:24AM

if you take a leave of absence from your university or you

8:51:29AM

spend more than a certain amount of time with Microsoft

8:51:34AM

research, then you -- it becomes a employment relationship.

8:51:38AM And so I had that relationship in 2008 and in one other
8:51:46AM subsequent period. I believe in 2011 or 2012.

8:51:57AM Q. And was your employment for Microsoft or your relationship
8:52:01AM with Microsoft in 2008 and 2011 disclosed on your C.V. in this
8:52:06AM case?

8:52:06AM A. Yes.

8:52:11AM Q. Are you presently engaged by Microsoft on any antitrust
8:52:14AM matter?

8:52:14AM A. No.

8:52:18AM Q. Did you seek permission from Microsoft to serve as an
8:52:21AM expert in this case?

8:52:21AM A. No.

8:52:26AM Q. Did anyone at Microsoft ask you to serve as an expert in
8:52:29AM this case?

8:52:29AM A. No.

8:52:35AM Q. Did you get any direction from Microsoft about any of the
8:52:38AM opinions you voiced in this case?

8:52:41AM A. No.

8:52:44AM Q. Has Microsoft been your primary consulting client in
8:52:47AM recent years?

8:52:49AM A. No.

8:52:49AM Q. When was the last time that Microsoft was your primary
8:52:52AM consulting client?

8:52:53AM A. It was scaling down during 2015, and so somewhere in that
8:53:03AM range.

8:53:06AM Q. As far as you know, did your engagement by Epic have
8:53:09AM anything to do with Microsoft?

8:53:10AM A. Not as far as I know.

8:53:23AM Q. Ms. Dunn asked you some questions yesterday about your
8:53:28AM potential review of hypothetical confidential Apple documents
8:53:33AM that hypothetically said how many people switched from Android
8:53:37AM iOS or vice versa.

8:53:39AM You remember that?

8:53:40AM A. Yes.

8:53:41AM Q. Is there public data concerning switching between iOS and
8:53:45AM Android?

8:53:46AM A. Yes.

8:53:47AM Q. And as a tech economist, platform economist, do you
8:53:53AM generally keep abreast of the data about switching between
8:53:56AM those two platforms?

8:53:57AM A. Yes.

8:54:07AM THE COURT: Is all of that evidence attached to your
8:54:09AM report? That is, is it a part of the record in this case?

8:54:16AM MR. EVEN: I'm sorry. Which data is that, Your
8:54:17AM Honor?

8:54:19AM THE COURT: What you just asked her about, the data
8:54:21AM about switching between the platforms. Is that data that is
8:54:24AM in the record in this case, Professor Athey?

8:54:27AM THE WITNESS: I -- I don't want to misspeak, but I --

8:54:38AM THE COURT: Well, and I just want to know what's in

8:54:40AM the record.

8:54:45AM **THE WITNESS:** I believe that Dr. Evans has
8:54:49AM information.

8:54:52AM **THE COURT:** Did you rely on Dr. Evans in establishing
8:54:55AM your opinions?

8:54:55AM **THE WITNESS:** I relied on Dr. Evans for the market
8:55:01AM definition and for the -- the switching costs and the -- the
8:55:10AM market power in both the -- the foremarket and the
8:55:14AM aftermarket.

8:55:15AM **THE COURT:** Did you review data and did you analyze
8:55:18AM data?

8:55:18AM **THE WITNESS:** I did not do original analysis of data.

8:55:22AM **THE COURT:** And there's no data attached to your
8:55:23AM report?

8:55:24AM **THE WITNESS:** No -- no original data, no.

8:55:28AM **THE COURT:** All right. Thank you.

8:55:29AM **BY MR. EVEN:**

8:55:46AM **Q.** You were also asked some questions about DX5612 and --
8:55:56AM which talked about some bad news and good news about switching
8:56:02AM between iOS and Android.

8:56:04AM Do you remember that?

8:56:05AM **A.** Yes.

8:56:16AM **Q.** And in the good news, it said -- and I'm reading from
8:56:23AM it -- "These days, most major productivity apps are readily
8:56:28AM available on both platforms. And once you are all set up with

8:56:31AM Android, all of your apps and app data will automatically sync
8:56:35AM with Google servers and follow you to any future Android
8:56:41AM devices."

8:56:41AM Do you see that?

8:56:43AM A. Yes.

8:56:44AM Q. Is that good news about the transfer from iOS to Android?

8:56:48AM A. No.

8:56:51AM Q. What is this good news about?

8:56:54AM A. The -- it's speaking about following between Android
8:57:02AM devices. So good news for switching among Android devices.

8:57:09AM Q. You were also asked by Ms. Dunn about some -- an article
8:57:15AM from *The Guardian* that you cited in your report.

8:57:17AM Correct?

8:57:18AM A. Yes.

8:57:20AM Q. So I'm putting up on the screen the relevant portion that
8:57:24AM counsel for Apple directed you to. And it's on page 3.

8:57:29AM (Exhibit published.)

8:57:31AM BY MR. EVEN:

8:57:34AM Q. And you recall that counsel for Apple asked you some
8:57:39AM questions suggesting that you omitted the parts that are bad
8:57:42AM for you in this -- in the article?

8:57:45AM A. Yes.

8:57:46AM Q. And specifically, counsel for Apple pointed you to the
8:57:50AM stuff that says that piracy on Android is a fact, correct?

8:57:54AM A. Yes.

8:57:55AM Q. So I'd like to maybe scroll down a little bit to the
8:58:00AM points that Ms. Dunn did not show you.

8:58:02AM (Exhibit published.)

8:58:05AM BY MR. EVEN:

8:58:06AM Q. And do you see that after they say that piracy on Android
8:58:11AM is a fact, they say, yet, a, piracy is also a fact of the life
8:58:18AM on iOS through some elements of its jail-breaking community;
8:58:21AM b, it's always difficult to work out how many pirates
8:58:24AM represent generally low sales would they have bought the app
8:58:28AM otherwise; and, c, if an app is free of premium, then piracy
8:58:33AM is much less of a headache.

8:58:36AM Do you see that?

8:58:37AM A. Yes.

8:58:37AM Q. And then the article goes on to say only Android user less
8:58:42AM keen -- sorry -- on the Android user-less-keen-to-pay point,
8:58:45AM it's true that iOS is still more lucrative for developers.
8:58:49AM Apple has paid out more than ten billion to its developers
8:58:54AM while Google hasn't given comparable figures.

8:58:58AM Do you see that?

8:58:59AM A. Yes.

8:58:59AM Q. Does the article reach a definitive conclusion about the
8:59:03AM point for which you cited it, which was the point about users
8:59:08AM paying more on iOS?

8:59:09AM A. Yes. The article is consistent with the -- the -- the
8:59:17AM point that -- that developers make more on -- on iOS.

8:59:24AM Q. And does the article reach a definitive conclusion that
8:59:28AM Android piracy is a deterrent more so than iOS piracy?

8:59:36AM A. I think it's suggesting that -- that piracy may be more
8:59:45AM common, but also that because, you know, people who have less
8:59:51AM money to spend might be substituting between piracy and not
8:59:56AM using the game at all rather than piracy for -- for paying.
9:00:00AM That's my -- my interpretation of this?

9:00:02AM So although piracy may be more common, it doesn't
9:00:09AM necessarily mean that fixing the piracy would make the
9:00:11AM developers earn more. But that's -- in any case, that's --
9:00:20AM that -- the point that I cited them about was that -- that iOS
9:00:28AM developers often develop first on iOS, but also most of them
9:00:34AM eventually go to Google, too, which is, you know, all
9:00:39AM consistent with this.

9:00:40AM Q. Okay.

9:00:43AM You were asked some questions yesterday about whether
9:00:45AM Apple would need to undertake any technical redesign efforts
9:00:50AM for middleware to run on iOS, correct?

9:00:52AM A. Correct.

9:00:54AM Q. And one of the middleware instances you were talking about
9:00:59AM were streaming services, correct?

9:01:01AM A. Yes.

9:01:02AM Q. And you testified yesterday that you reviewed Microsoft
9:01:06AM trial testimony concerning streaming, correct?

9:01:08AM A. Yes.

9:01:09AM Q. And that you reviewed Nvidia's testimony on the topic of
9:01:13AM streaming, correct?

9:01:16AM MS. DUNN: Objection. I think mischaracterizes the
9:01:18AM record.

9:01:23AM THE COURT: Sustained. I think you -- you said you
9:01:25AM didn't listen to the testimony. But did you read something
9:01:30AM else?

9:01:30AM THE WITNESS: I --

9:01:32AM THE COURT: What is it that -- let's just get the
9:01:33AM record clear.

9:01:35AM THE WITNESS: Sorry.

9:01:37AM MR. EVEN: I think, Your Honor, what --

9:01:39AM THE COURT: Just let -- she can answer.

9:01:40AM BY MR. EVEN:

9:01:40AM Q. Go ahead.

9:01:41AM THE COURT: Was it Nvid- -- did you read the
9:01:44AM testimony or something else?

9:01:46AM THE WITNESS: I read selections of testimony that
9:01:48AM related to streaming.

9:01:49AM THE COURT: Okay. For Microsoft and Nvidia.

9:01:52AM THE WITNESS: Yes.

9:01:52AM THE COURT: Okay.

9:01:53AM BY MR. EVEN:

9:01:54AM Q. And based on your review of that testimony, do you have an
9:01:57AM understanding whether technical design changes would need to

9:01:59AM be done in iOS to support app streaming?

9:02:02AM **A.** My understanding was that these witnesses said that
9:02:10AM technical design changes would not be needed, that -- I
9:02:15AM believed that, you know, one of the apps accepted and --
9:02:20AM and -- from Nvidia and then taken down, so --

9:02:29AM **MR. EVEN:** Thank you, Professor Athey. I have no
9:02:32AM further questions.

9:02:32AM **THE WITNESS:** Thank you.

9:02:33AM **THE COURT:** Any recross on those seven topics?

9:02:37AM **MS. DUNN:** No re-cross, Your Honor. Thank you.

9:02:38AM **THE COURT:** All right. Professor, you're excused.
9:02:41AM Thank you.

9:02:42AM If counsel will come and get those binders.

9:02:45AM Next witness.

9:02:46AM (Off-the-record discussion.)

9:03:04AM **THE COURT:** Ms. Forrest, next witness.

9:03:06AM **MS. FORREST:** Yes. Your Honor, we now turn to some
9:03:09AM of the economists from the Apple side.

9:03:12AM **THE COURT:** Okay. Thank you.

9:03:13AM **MR. SWANSON:** Your Honor, as our next witness --
9:03:13AM perhaps our first witness, we're calling Professor Richard
9:03:13AM Schmalensee.

9:03:34AM **THE COURT:** You need to identify yourself for the
9:03:35AM record.

9:03:36AM **MR. SWANSON:** Dan Swanson for Apple, Your Honor.

9:03:39AM Good morning.

9:03:39AM **THE COURT:** Good morning.

9:03:45AM Your witness, sir, is...? So and you're calling.

9:04:02AM **MR. SWANSON:** I'm sorry. Professor Richard
9:04:05AM Schmalensee.

9:04:06AM **THE COURT:** Okay. Thank you.

9:04:06AM **RICHARD SCHMALENSEE,**
9:04:08AM called as a witness for the DEFENDANT, having been duly sworn,
9:04:08AM testified as follows:

9:04:16AM **THE CLERK:** All right. Please be seated and then if
9:04:18AM you will put that mic below your plastic shield there and --

9:04:24AM **THE WITNESS:** Hello, hello, hello. Does that work?
9:04:26AM Okay.

9:04:26AM **THE CLERK:** State your full name and spell your last
9:04:28AM name, please.

9:04:29AM **THE WITNESS:** Full name is Richard Schmalensee. The
9:04:32AM last name is spelled S-c-h-m-a-l-e-n-s-e-e.

9:04:38AM **THE COURT:** Good morning, sir.

9:04:39AM **THE WITNESS:** Good morning.

9:04:41AM **THE COURT:** You may proceed.

9:04:42AM **MR. SWANSON:** Thank you, Your Honor.

9:04:43AM **DIRECT EXAMINATION**

9:04:44AM **BY MR. SWANSON:**

9:04:44AM **Q.** Professor Schmalensee, where are you currently employed?

9:04:48AM **A.** At the Sloan School of Management at the Massachusetts

9:04:50AM Institute of Technology.

9:04:53AM Q. Okay. And what is your current title? And perhaps you
9:04:58AM can give us a little bit of background.

9:05:01AM A. Well, I'm Howard W. Johnson Professor of Management
9:05:07AM emeritus, Professor of Economics emeritus, and was formerly
9:05:11AM Dean of the MIT Sloan School, so I'm Dean emeritus.

9:05:15AM Q. Okay.

9:05:15AM We have a copy of Professor Schmalensee's C.V. which has
9:05:21AM been marked as DX5548, which we would offer, Your Honor.

9:05:27AM MR. BORNSTEIN: No objection, Your Honor.

9:05:27AM THE COURT: 5548 is admitted.

9:05:27AM MR. SWANSON: Thank you.

9:05:27AM (Defendant's Exhibit 5548 received in evidence)

9:05:27AM (Off-the-record discussion.)

9:05:35AM MR. BORNSTEIN: I'm sorry. It's Gary Bornstein for
9:05:37AM Epic.

9:05:37AM THE COURT: So just -- again, so the -- attorneys
9:05:41AM know, not only is it important for people listening to
9:05:44AM identify yourselves, but because we've had issues trying to
9:05:49AM cover as much of the trial, we now have additional court
9:05:53AM reporters, and they can use the additional identifications.

9:05:59AM Thank you.

9:06:01AM Proceed.

9:06:03AM BY MR. SWANSON:

9:06:03AM Q. All right, Professor. We have your C.V. in evidence, but

9:06:07AM could you just briefly describe your -- your formal education.

9:06:09AM A. I have a bachelor's and a Ph.D. in economics from MIT.

9:06:14AM Q. Okay.

9:06:15AM Have you ever testified as an expert in federal or state
9:06:18AM court before?

9:06:19AM A. Yes, I have.

9:06:20AM Q. And generally speaking what was the subject of -- of your
9:06:24AM prior testimony?

9:06:25AM A. Much of my testimony has concerned alleged violations of
9:06:29AM the antitrust laws. I suppose most notably, I was Microsoft's
9:06:34AM expert in the *U.S. vs. Microsoft* case.

9:06:36AM Q. Have you ever been a consultant to any competition agency?

9:06:43AM A. Yes. I was for a number of years consultant to the Bureau
9:06:46AM of Economics at the Federal Trade Commission. And I was one
9:06:49AM of a few consultants -- I don't know how many -- to the
9:06:52AM Antitrust Division of the Department of Justice in connection
9:06:55AM with preparation of the 1992 Horizontal Merger Guidelines.

9:07:00AM Q. And speaking of consulting, have you ever been retained as
9:07:04AM a consultant by Apple before this case?

9:07:06AM A. No.

9:07:08AM Q. Professor Schmalensee, have you ever served in the
9:07:10AM government?

9:07:11AM A. Yes, I have.

9:07:12AM Q. And in what role?

9:07:14AM A. I was a member of the Council of Economic Advisors from

9:07:17AM 1989 through 1991.

9:07:19AM Q. And just briefly, what -- what is that? What does that
9:07:22AM role entail?

9:07:23AM A. Well, the -- it's fairly broad role. The Council of
9:07:27AM Economic Advisors is a three-person entity established in
9:07:30AM 1946. It sits with a small staff in the Eisenhower Executive
9:07:38AM Office building next to the White House and advises the
9:07:41AM president on a broad range of economic policy issues.

9:07:45AM Q. Did that include competition policy issues?

9:07:47AM A. Occasionally. I -- I was engaged with the antitrust
9:07:51AM division on at least two international matters.

9:07:54AM Q. All right.

9:07:56AM Have you been following the trial in this case?

9:07:57AM A. I have either read or listened to everything that's gone
9:08:02AM on.

9:08:05AM Q. And one more question about your background in general.
9:08:10AM What -- what has been the focus of your academic research?

9:08:14AM A. Well, as an economist, I've worked on a fairly wide range
9:08:19AM of topics in the general field of industrial organization and
9:08:23AM its application to public policy.

9:08:24AM In the last 20 years or so, much of my work has focused on
9:08:28AM platform economics.

9:08:31AM THE COURT: Professor.

9:08:32AM THE WITNESS: Platform businesses.

9:08:32AM THE COURT: Could you just slow down a little.

9:08:34AM **THE WITNESS:** I'm sorry.

9:08:35AM **THE COURT:** Okay.

9:08:35AM **THE WITNESS:** A bad habit.

9:08:41AM **BY MR. SWANSON:**

9:08:41AM **Q.** And in connection with platform economics and writing,
9:08:47AM what -- what can you point to by way of --

9:08:54AM **A.** Well, at least 3 books in the last 20 years or so.

9:08:57AM "Invisible Engines" in 2006. "Catalyst Code" in 2007. And
9:09:03AM "Matchmakers" published in 2015.

9:09:08AM **Q.** Did you have a coauthor?

9:09:10AM **A.** Dr. Evans, who's testified here, was coauthor on all three
9:09:15AM books.

9:09:15AM **Q.** Okay.

9:09:16AM Have you and Dr. Evans collaborated on anything beside
9:09:20AM those three books?

9:09:21AM **A.** Well, in the last 20 years or so, we've -- we've written
9:09:25AM together, I think -- what is it -- a half to -- 5 -- half
9:09:29AM dozen journal articles, maybe 8 book chapters, 15 other
9:09:33AM writings, including I guess most notably amicus briefs to the
9:09:39AM Second Circuit in the *Saber* case and to the Supreme Court in
9:09:43AM the *American Express* case.

9:09:46AM **Q.** And in what capacity did you and Dr. Evans submit those
9:09:51AM amicus briefs?

9:09:53AM **A.** As economists commenting on the case and prior rulings.

9:09:59AM **Q.** And did you -- well, are you aware of whether your amicus

9:10:04AM briefs were cited in any of the rulings that came in those
9:10:08AM cases?

9:10:09AM **A.** I believe we were cited in the -- by the Second Circuit.
9:10:12AM I know we were cited extensively, our writings, by the -- both
9:10:17AM the majority and the dissent in the *AmEx* case.

9:10:24AM **MR. SWANSON:** Your Honor, I'd like to offer Professor
9:10:27AM Schmalensee as an expert in antitrust economics and platform
9:10:30AM economics.

9:10:32AM **MR. BORNSTEIN:** No objection, Your Honor.

9:10:33AM **THE COURT:** He's admitted.

9:10:36AM **BY MR. SWANSON:**

9:10:37AM **Q.** Professor, did you hear Dr. Evans' direct testimony on
9:10:40AM transaction platforms?

9:10:42AM **A.** I did hear his direct testimony. I also read his written
9:10:44AM testimony.

9:10:45AM **Q.** And -- and what -- what -- what did you read or hear on
9:10:51AM the subject of transaction platforms, just in brief?

9:10:55AM **A.** Well, in his -- in his written testimony, he described the
9:10:59AM App Store as a transaction platform linking developers and
9:11:03AM consumers.

9:11:05AM In his oral testimony, he seemed to describe the App Store
9:11:08AM as a distribution ser- -- facility providing services to
9:11:13AM developers. That is to say, as a one-sided business.

9:11:17AM **Q.** Now, you mentioned your joint amicus brief with Dr. Evans
9:11:22AM in the *AmEx* case.

9:11:24AM Did you and Dr. Evans discuss transaction platforms in
9:11:29AM that brief?

9:11:30AM A. We did. That was -- I guess our central message was that
9:11:36AM in that case or in general, when a business performs or
9:11:42AM provides a service -- well, we said jointly and unseverably;
9:11:46AM the Supreme Court said simultaneously -- to both sides, it is
9:11:52AM providing a single product, transactions. And that analysis
9:11:58AM or -- or consideration of only one side in that platform would
9:12:03AM lead to -- would lead to inaccurate conclusions.

9:12:08AM Q. Now, did you review Dr. Evans' testimony that Apple's iOS
9:12:13AM business includes two distinct platforms, both connecting
9:12:18AM developers and consumers?

9:12:19AM A. I did.

9:12:21AM Q. And -- and have you formed an opinion on that testimony?

9:12:27AM A. Yes. I -- I don't think that's the right way to think
9:12:32AM about the business, at least that's not the way I think about
9:12:35AM the business or anybody else seems to think about the
9:12:37AM business.

9:12:39AM Apple's iOS business is clearly a platform linking
9:12:44AM consumers and developers. The iOS operating system is at the
9:12:51AM core of that platform. It's -- it -- it runs the devices, and
9:12:55AM it links app -- applications programs or apps to those
9:13:01AM devices.

9:13:02AM The third element besides devices and the operating system
9:13:06AM is the App Store, which is a transaction platform that

9:13:13AM facilitates transactions between -- linkage between consumers
9:13:17AM and app developers.

9:13:20AM Q. Do you agree with Dr. Evans that there is a foremarket in
9:13:23AM which iOS competes with other operating systems for mobile
9:13:29AM devices in which Apple has market power?

9:13:31AM A. No. There -- there really isn't a market there. I mean,
9:13:35AM you think of a market as someplace where things are bought and
9:13:39AM sold by buyers and sellers. And the Apple iOS has never been
9:13:44AM licensed separately or distributed separately from devices.

9:13:48AM And the other system he considers, Android, has always
9:13:51AM been free. It -- it's just not -- not an ordinary market.

9:13:59AM What is an ordinary market and comes close is devices in
9:14:03AM which bundles of operating systems, so to speak, and hardware
9:14:07AM are bought and sold and in which Apple has about a 15 percent
9:14:12AM global share of smartphones -- smartphone unit sales, let me
9:14:16AM be clear.

9:14:19AM Q. Changing the subject momentarily, Professor Schmalensee,
9:14:24AM are you familiar with the term "IAP"?

9:14:26AM A. I am. It's -- it's Apple's -- it stands for in-app
9:14:32AM processing. And it's the functionality that's part of the App
9:14:37AM Store that handles payments for in-app transactions.

9:14:43AM Q. Do you -- in-app processing or in-app purchasing?

9:14:50AM A. I said "in-app transactions," but it's in-app purchasing
9:14:54AM it handles the payment for.

9:14:56AM Q. Um-hmm.

9:14:56AM And what do you understand about the functions that --
9:15:01AM that IAP performs?

9:15:03AM **A.** Well, it's -- it's part of a larger system, and -- and
9:15:07AM there are a lot of functions performed. But a key function
9:15:12AM and a function that's critical to this case is it
9:15:17AM automatically and essentially frictionlessly collects the
9:15:22AM commission due Apple on transactions involving in-app
9:15:27AM purchases.

9:15:27AM **MR. SWANSON:** And the --

9:15:27AM (Off-the-record discussion.)

9:15:28AM **BY MR. SWANSON:**

9:15:28AM **Q.** And the amount of the commission is what?

9:15:36AM **A.** Well, the -- it's a -- typically a 30 percent commission,
9:15:40AM although it's 15 percent in some cases. But it's -- it's
9:15:45AM important to recognize, and I must say I find these kind of
9:15:48AM shocking figures, Apple engages with hundreds of thousands of
9:15:53AM developers in 175 countries and regions. The average
9:15:59AM commission on a transaction handled by the App Store is a bit
9:16:05AM under \$3. And the store handles well over a billion and a
9:16:11AM half transactions of that sort a year, a billion and a half
9:16:15AM small transactions from all over the world every year.

9:16:20AM **Q.** Is the 30 percent commission or the 15 percent commission
9:16:23AM in instances where that is charged in your view charged and
9:16:29AM collected only for payment processing?

9:16:31AM **A.** Not at all. It -- it's a commission charged by Apple as

9:16:36AM part of its pricing strategy.

9:16:38AM You know, Epic executives were asked about that, and
9:16:43AM Mr. Sweeney said that the -- the Epic Game Store commissions
9:16:49AM were to cover all variable costs. One of the other Epic
9:16:53AM executives, I think Mr. Allison, said it -- the charge was for
9:16:58AM admission to our audience. However one wants to characterize
9:17:02AM it, it's not payment processing. It -- it's a commission on a
9:17:06AM transaction.

9:17:08AM Q. Are you aware that Epic and Dr. -- well, Epic alleges and
9:17:13AM Dr. Evans concludes that IAP is a separate tie product in a
9:17:21AM market for solutions for accepting and processing payments for
9:17:25AM digital content purchased within an iOS App?

9:17:31AM A. I am aware of that. That may also be the longest market
9:17:34AM definition I've ever heard, but I am aware of that, yes.

9:17:38AM Q. Well, does this -- it may be long, but does it describe a
9:17:42AM plausible market in your opinion?

9:17:43AM A. It does not. A market is where something -- some things
9:17:52AM are bought and sold with buyers and sellers. And the way
9:17:56AM Dr. Evans describes this general area of commerce, let me just
9:18:02AM say that, is that solutions are produced by payment processors
9:18:09AM and app developers not bought and sold.

9:18:16AM I don't know what IAP is. It's not a payment processor.
9:18:21AM It engages with a payment -- payment processors, so I'm not
9:18:25AM sure what it is. But I am sure that there's nothing bought
9:18:28AM and sold in that market, as far as I can tell.

9:18:31AM Q. Is Dr. Evans' payment solutions market a single-brand
9:18:41AM market?

9:18:42AM A. It's a single-brand market, and it's even narrower than
9:18:45AM that because he excludes payment solutions employed by firms
9:18:51AM that sell physical products on iOS Apps. So it's a narrow
9:18:58AM market, and it's a -- it's small.

9:19:01AM Normally, if -- if there is a market, you think about,
9:19:06AM well, how big is this thing relative to the market, to a
9:19:12AM broader market? And IAP handles at most 3 percent of the
9:19:18AM dollar volume of in-app purchases, so it's -- it's small.

9:19:27AM Q. Now, both you and Dr. Evans have mentioned payment
9:19:33AM processors. You just mentioned it in your last answer.

9:19:36AM Is IAP a payment processor?

9:19:39AM A. No. IAP, the -- the closest analog I can come up with in
9:19:46AM the brick-and-mortar world is it's like the credit card
9:19:51AM terminal. It connects to a payment processor. Apple uses a
9:19:59AM payment processor to authorize transactions and collect the
9:20:02AM money.

9:20:04AM Q. Does it make sense to treat IAP as a separate product
9:20:09AM distinct from the App store?

9:20:10AM A. It doesn't. Because IAP is the essential way that Apple
9:20:16AM collects its commissions. It -- it is -- I'm not quite sure
9:20:24AM how I can elaborate on this. This is how Apple in a
9:20:27AM automatic-and-seamless fashion collects the commissions its
9:20:30AM owed, so it's -- it is an integral part of the store.

9:20:36AM Q. Now, Dr. Evans asserts -- concludes in his opinion that
9:20:43AM there is a separate demand for payment solutions distinct from
9:20:49AM the demand for facilitating app transactions.

9:20:55AM Do you agree with his position?

9:20:56AM A. Well, what I've seen on that in his -- in his testimony in
9:21:03AM its various forms is that developers would really rather not
9:21:07AM pay the 30 percent and would like to find another solution,
9:21:12AM another way to handle their own payments so they don't have to
9:21:15AM pay Apple.

9:21:17AM I don't view that as a separate demand for a service. I
9:21:21AM view that as a desire not to pay a commission.

9:21:27AM Q. Dr. Evans, certainly in his written direct, says that IAP
9:21:33AM should, in fact, compete with third-party payment solutions on
9:21:38AM the merits.

9:21:39AM What is your -- what is your evaluation of that opinion?

9:21:43AM A. Well, this sort of seems to me to be a back-handed way to
9:21:48AM once again say, oh, well, IAP is just about payment
9:21:51AM processing. But if you think about that kind of competition,
9:21:54AM it can't possibly be on the merits.

9:21:57AM Here is a IAP, which is tasked with collecting a
9:22:00AM 30 percent commission on many transactions. Third-party
9:22:06AM payment processors would not seek to collect a commission, at
9:22:09AM least none that I've heard of. So IAP would always be the
9:22:15AM high priced alternative, and it's hard to see how IAP would
9:22:18AM prevail in that sort of competition, which doesn't seem like

9:22:23AM competition on the merits.

9:22:26AM Q. Has Dr. Evans, in your view, pointed to an example or any
9:22:30AM example of this type of so-called competition on the merits?

9:22:34AM A. No. He hasn't pointed to a single successful platform
9:22:41AM that has nominally charged a commission and yet made it easy
9:22:46AM for developers or the sellers on the platform to avoid that
9:22:51AM commission.

9:22:54AM Q. Do any other two-sided platforms use a business model that
9:22:59AM is similar to the App store's model?

9:23:01AM A. Well, lots of them. I think Mr. Sweeney testified that --
9:23:06AM that every app store through which Epic reaches consumers has
9:23:11AM basically that model, charges a commission and automatically
9:23:16AM collects that commission using its own payment system.

9:23:19AM That would be -- and I'll see if I can -- if I can list
9:23:23AM them all. It's a long list. But it would be Steam, it would
9:23:26AM be the Google Play. It would be the Microsoft Store. It
9:23:31AM would be the Xbox Store, the Nintendo Store. Google -- did I
9:23:41AM say Google Play? I might have said Google.

9:23:44AM Q. I think --

9:23:44AM (Simultaneous colloquy.)

9:23:45AM **THE WITNESS:** There are about eight of them that
9:23:46AM Mr. Sweeney listed that Mr. Evans listed -- Dr. Evans listed.

9:23:52AM In addition, in his -- in his written testimony, he listed
9:23:55AM a number of platforms that sell physical goods maybe and
9:24:00AM services. And in his oral testimony, his cross-examination,

9:24:03AM said, yes, indeed. All of them charge commissions, and all of
9:24:07AM them collect those commissions automatically by requiring use
9:24:11AM of their own payment systems.

9:24:13AM **BY MR. SWANSON:**

9:24:13AM **Q.** What do you conclude from this?

9:24:16AM **A.** Well, I conclude two things really. First, that an -- in
9:24:21AM an online business of this kind, that commission model is a
9:24:27AM natural way to monetize. In larger transactions, the store
9:24:31AM makes more money, the seller makes more money, so the
9:24:35AM percentage commission model seems natural, seems very common.

9:24:39AM And second, when stores handle a large number of small
9:24:44AM transactions, collecting those fees automatically seems to be
9:24:49AM the natural model, seems to be the -- the obvious way to go.

9:24:56AM **Q.** And you'd mentioned the number of transactions that the
9:25:01AM App Store collects annually.

9:25:03AM What was that number again?

9:25:05AM **A.** Well, it's over a billion and a half. And they're --
9:25:10AM they're, on average, quite small.

9:25:13AM **Q.** Have you observed or analyzed transaction platforms that
9:25:18AM are not online stores impose restrictions that serve purposes
9:25:25AM similar to those served by the IAP requirement?

9:25:28AM **A.** Well, I guess not surprisingly American Express comes to
9:25:32AM mind. American Express operates -- offers a transaction
9:25:40AM platform. And American Express has anti-circumvention rules
9:25:44AM to ensure that it collects its commission.

9:25:47AM It collects its commission essentially automatically these
9:25:51AM days and has rules against steering, so to speak, trying to
9:25:56AM persuade customers to buy from a cheap -- through a cheaper
9:26:00AM payment system.

9:26:01AM It's the same -- it's the same rule. I mean, the -- the
9:26:07AM App store has rules to -- to avoid steering. *AmEx* had a rule
9:26:12AM to avoid steering.

9:26:14AM Q. Was that practice one that was at issue in the *AmEx* case
9:26:21AM were you and Dr. Evans submitted the amicus brief?

9:26:25AM A. Yes, it was.

9:26:27AM Q. In your view as an antitrust economist, as a expert on
9:26:31AM platforms, is Apple's IAP requirement anti-competitive?

9:26:35AM A. No. Apple's IAP requirement is an efficient way to
9:26:40AM collect a commission, and a commission-based business model
9:26:45AM appears to be the natural business model for online stores.

9:26:50AM Q. When you testify that it's not anti-competitive, are you
9:26:58AM specifically including in your opinion these so-called
9:27:04AM anti-steering provisions that bar developers from steering
9:27:08AM customers within the app to payment methods outside the app?

9:27:12AM A. I am. It's exactly the same. Exactly the same as the
9:27:15AM anti-steering provisions at issue in *AmEx* that prohibited the
9:27:19AM seller from trying to avoid the commission by persuading the
9:27:23AM buyer, one way or another, to restructure the transaction in a
9:27:29AM way that reduce -- would reduce the seller's commission.

9:27:34AM Q. Earlier --

9:27:36AM **THE COURT:** And *AmEx*, there wasn't a duopoly, though,
9:27:40AM correct?

9:27:40AM **THE WITNESS:** I'm sorry, ma'am?

9:27:42AM **THE COURT:** I said in *AmEx*, there wasn't a duopoly.

9:27:45AM **THE WITNESS:** No. In *AmEx* there were multiple
9:27:48AM competitors, but it was the same rule. The -- the rule said
9:27:51AM the merchant can't say to a customer -- as has happened to me,
9:27:57AM may have happened to you -- I'd really rather you didn't use
9:28:00AM the *AmEx* card. Could you use the Visa? It will save me
9:28:04AM money, please.

9:28:05AM That's the kind of steering that was at issue in the *AmEx*
9:28:07AM case.

9:28:08AM **THE COURT:** Right. But when you go into a store, you
9:28:10AM can see the sign that says, Visa, Mastercard, Discover, *AmEx*.
9:28:17AM Maybe not Discover anymore. Back then there, was Discover.

9:28:22AM **THE WITNESS:** Yes.

9:28:23AM **THE COURT:** So there were -- there were visual
9:28:27AM indications of options. Those visual indications of options
9:28:32AM don't exist in this circumstance.

9:28:35AM **THE WITNESS:** Well, let me -- let me explain the
9:28:37AM comparison. In -- in the store, you're right, there was the
9:28:40AM visual indications, Your Honor, that said, we accept American
9:28:44AM Express.

9:28:44AM The merchant was prohibited by contract to say -- to say,
9:28:50AM even though we express -- accept American Express, would you

9:28:54AM please use something else.

9:28:55AM The analog here would be a button in the -- in an app that
9:29:02AM says, well, you could buy through the IAP through the App
9:29:06AM Store, but you'll save a lot of money if you go elsewhere.
9:29:10AM That's the -- that's the call to action that the App Store's
9:29:15AM rules prohibit. And it's the same attempt -- could be --

9:29:20AM **THE COURT:** But it doesn't say "also available on our
9:29:23AM website."

9:29:25AM **THE WITNESS:** Well, it could.

9:29:25AM **THE COURT:** "Also available on Steam."

9:29:28AM **THE WITNESS:** It could. And that's what the rules
9:29:30AM prohibit. The rules prohibit saying you could save money if
9:29:33AM you did X.

9:29:35AM **THE COURT:** That's what -- that's right. That's what
9:29:36AM the rules say, you cannot do.

9:29:38AM **THE WITNESS:** Correct.

9:29:39AM **THE COURT:** But if you were in a physical shop during
9:29:42AM the AmEx time period, you would know that because when you
9:29:46AM went to the register, it would show that there were other
9:29:48AM payment options.

9:29:50AM **THE WITNESS:** It would, Your Honor, but -- but the --
9:29:52AM the difference here is it wouldn't say the merchant would save
9:29:59AM money if you use this rather than the other.

9:30:02AM The merchant has to say that.

9:30:04AM **THE COURT:** But these are gradations. I mean, there

9:30:06AM is zero availability to know that you have a different option
9:30:11AM with the -- with the -- on the app, whereas that did not
9:30:17AM exist. That zero availability did not exist. And what's so
9:30:21AM bad about it anyway, Professor?

9:30:23AM **THE WITNESS:** I'm sorry. What's what about?

9:30:27AM **THE COURT:** I said what's so bad about it anyway, to
9:30:29AM have consumers have choice?

9:30:31AM **THE WITNESS:** The reason is if consumers have choice,
9:30:33AM if the app vendor can say, if you press this button, you can
9:30:39AM buy this for less, that means the App store can't collect its
9:30:43AM commission.

9:30:44AM So you're giving the consumer a better deal, absolutely
9:30:47AM right. But you're undercutting the App Store's ability to
9:30:51AM collect its commission and, thus, you're undercutting its
9:30:55AM revenue stream. That's what that does.

9:30:58AM And the argument in *American Express* was if you let
9:31:01AM merchants steer -- right? American Express charges more to
9:31:05AM merchants. That's its model. If you let merchants say, well,
9:31:09AM I know we said we accepted American Express, but won't you
9:31:12AM please use this other card, then American Express's model is
9:31:18AM undercut.

9:31:19AM Now, you may or may not like that model, but that's
9:31:22AM American Express's model. And as I understand it, the court
9:31:25AM said, American Express is entitled to say if you advertise you
9:31:29AM accept American Express, you have to accept it.

9:31:32AM And the story here is, if you're on the App Store, then by
9:31:37AM contract, you pay our commission.

9:31:40AM You don't say, I know we're on the App store. I know
9:31:43AM we owe them money, but you and I can get a better deal if you
9:31:49AM buy over here and avoid the -- and I avoid paying the
9:31:52AM commission and you get a better deal. It's analytically, I
9:31:55AM think, exactly the same.

9:31:57AM **THE COURT:** I don't think it's factually the same,
9:31:58AM but proceed.

9:32:01AM **BY MR. SWANSON:**

9:32:03AM **Q.** Now, earlier, Professor Schmalensee, you mentioned that
9:32:06AM IAP does more than collect commissions.

9:32:09AM Are there any pro-competitive benefits to the business
9:32:13AM model?

9:32:14AM **A.** Well, there are. Because Apple has the unique ability to
9:32:21AM identify the hardware connected to the App Store, it can
9:32:25AM implement the one-click session model that enables privacy and
9:32:33AM security in simple transactions, easy transactions because it
9:32:38AM prevents the automatic transmission of payment card
9:32:41AM information to developers.

9:32:45AM Because all Apps go through the App -- all iOS Apps go
9:32:52AM through the App store, Apple can automatically transfers apps
9:32:56AM to new devices, can permit family sharing, and -- fraud
9:33:04AM protection features that relate to this as well. But the fact
9:33:07AM that they all go through the store means that you can keep

9:33:10AM track of everything that's happened.

9:33:13AM Q. Could third-party providers also offer these
9:33:17AM pro-competitive benefits?

9:33:18AM A. Well, third-party providers wouldn't have the same ability
9:33:22AM that Apple has to detect the device, to know who's on the
9:33:27AM other side automatically.

9:33:29AM In addition, though information would have to be
9:33:32AM transmitted, the level of privacy and security couldn't be
9:33:37AM equaled.

9:33:38AM In addition, if you had multiple providers, then you
9:33:42AM couldn't automatically restore all purchases. You couldn't
9:33:46AM automatically share all purchases with family members.

9:33:51AM Q. All right.

9:33:53AM I'm going to shift topics, Professor.

9:33:58AM THE WITNESS: Your Honor, may I have a sip of water?

9:34:01AM THE COURT: Absolutely.

9:34:02AM THE WITNESS: Thank you.

9:34:02AM BY MR. SWANSON:

9:34:20AM Q. Professor, are you aware that in court filings, Epic has
9:34:26AM stated that you conceded in your deposition that if the iOS
9:34:29AM App distribution market defined by Dr. Evans is a valid
9:34:34AM antitrust market, Apple is a monopolist; it has market power?

9:34:39AM A. I am aware of that.

9:34:41AM Q. Did you concede that?

9:34:43AM A. Well, I conceded it in the sense that I was asked in

9:34:47AM deposition to make that assumption, and I replied with the
9:34:50AM logical consequences of that assumption. If it's a properly
9:34:53AM defined market in which Apple is the only seller, then by
9:34:58AM dictionary definition, it's a monopolist. And because it's --
9:35:01AM I was asked to assume it was a valid antitrust market, it
9:35:04AM would have some market power. That is, as I said in a
9:35:08AM deposition, a tautology.

9:35:10AM Q. Did -- well, in your opinion, has Dr. Evans, in fact,
9:35:17AM shown that his iOS app distribution market is a valid,
9:35:19AM relevant market?

9:35:20AM A. No, he has not.

9:35:22AM Q. Okay. Why not?

9:35:23AM A. Well, he's neglected the strength of indirect network
9:35:30AM effects. In his prior writings, he's shown correctly that to
9:35:35AM do a proper market definition analysis involving a two-sided
9:35:40AM platform, one needs to know not only that there are indirect
9:35:44AM network effects but how strong they are. And he really has in
9:35:50AM effect ignored those effects.

9:35:53AM Q. Why -- why does it matter whether one takes into account
9:35:56AM indirect network effects?

9:35:59AM A. Well, indirect network effects generally magnify the
9:36:05AM impact of a price change. So if a price is increased to one
9:36:09AM side on a two-sided platform and there are indirect network
9:36:14AM effects, the ultimate impact of that price will exceed the
9:36:18AM initial impact, which means that when there are indirect

9:36:26AM network effects present, there are limits -- additional limits
9:36:29AM on the ability of a seller to raise price.

9:36:31AM If you neglect those additional limits, markets tend to be
9:36:35AM defined that are too narrow.

9:36:38AM **Q.** In your written testimony, you conclude that Dr. Evans's
9:36:43AM aftermarket sniff test is not valid.

9:36:46AM Would you explain the basis for that conclusion?

9:36:49AM **A.** Sure.

9:36:50AM In an ordinary sniff test, you would want demand
9:36:54AM elasticities. You would want to know how demand responds to
9:36:57AM changes in price.

9:36:58AM In a platform, you want those demand own price
9:37:05AM elasticities on both sides of the platform.

9:37:08AM In addition, you want to know the indir- -- the strength
9:37:12AM of indirect network effects. How does one side react to
9:37:16AM changes in the participation of the other side and vice versa.

9:37:20AM So that's really four quantities. Four price
9:37:24AM elasticities -- two price elasticities, excuse me. And two,
9:37:28AM if you will, indirect network effects elasticities.

9:37:32AM Professor Evans does have a price elasticity. He relies
9:37:37AM on Professor Rossi's survey, which I think is -- is far from
9:37:41AM perfect. But he relies on that survey to get a price
9:37:47AM elasticity for consumers.

9:37:49AM **Q.** How can Dr. Evans claim to perform a valid sniff test in
9:37:54AM that context without estimates of the other three quantities?

9:37:56AM **A.** Well, basically by -- by assuming that producers don't
9:38:03AM have much choice. So if there's an increase in the App Store
9:38:07AM commission, he acknowledges that will reduce consumer demand.
9:38:11AM That's that first price effect.

9:38:14AM And it would have two effects on developers. It would,
9:38:17AM first of all, reduce the demand for apps, but second of all,
9:38:22AM it would make sales of apps less profitable. But he says,
9:38:27AM well, developers won't leave the -- the iOS system; therefore,
9:38:31AM developers don't react at all to these two changes.

9:38:35AM But that's assuming that developers have only the choice
9:38:37AM of go or stay. Developers can decide where to bring out
9:38:42AM products. Developers can reallocate engineering resources.
9:38:46AM Developers can reallocate marketing resources. Developers
9:38:50AM have a lot of choices short of leaving or not leaving.

9:38:55AM I think it's reasonable to assume that they would react to
9:39:00AM some extent. Zero is too strong. If they react to some
9:39:05AM extent, there is a feedback effect.

9:39:06AM If they react by reducing resources devoted to the App
9:39:12AM Store, that will cause a further reduction in consumer demand.
9:39:18AM That's the step that's missing, and that further reduction in
9:39:21AM consumer demand would, again, affect developers.

9:39:24AM So by -- by giving developers no ability to react, he's
9:39:29AM shortcutting the proper sniff test.

9:39:35AM **Q.** Are you aware that Dr. Evans claims that Apple could raise
9:39:39AM its profits considerably by raising its commission rate?

9:39:43AM **A.** I am. And that -- that sort of proves my point. If the
9:39:47AM App store were maximizing profit and his analysis were
9:39:51AM correct, it would reveal that it couldn't profitably raise
9:39:56AM price because it would have done so.

9:39:57AM The -- the most probable reason he comes up with his
9:40:03AM conclusion is that he has, in effect, neglected indirect
9:40:07AM network effects, which, by the way, we both agree are strong
9:40:10AM here.

9:40:12AM **Q.** Changing subject somewhat, Dr. Evans argues that the App
9:40:15AM Store has very high operating profit margins and that this
9:40:19AM shows that the App Store has monopoly power.

9:40:22AM Do you agree?

9:40:23AM **A.** No.

9:40:24AM **Q.** Why not?

9:40:24AM **A.** Well, there's several reasons. Let me -- let me tic them
9:40:30AM off. First, economists normally look at profitability as a
9:40:36AM rate of return on investment and -- and recognize that
9:40:40AM accounting measures of the rate of return on investment have
9:40:43AM biases so that having a high accounting rate of return on
9:40:48AM investment doesn't establish the existence of high economic
9:40:52AM profits.

9:40:54AM But that's not the main problem. The main problem is the
9:40:57AM operating margin is not a measure of profitability. Simple
9:41:03AM example: Two factories producing the same product selling at
9:41:08AM the same price in a competitive market. One of them has

9:41:12AM invested a lot in machinery and has one worker. The other
9:41:16AM factory really hasn't made much of -- by way of investment and
9:41:19AM has a lot of workers.

9:41:21AM Well, the mechanized factory is going to have lower
9:41:25AM operating costs, so it's going to show a higher operating
9:41:29AM margin. That signifies nothing. That signi- -- doesn't mean
9:41:34AM it's more profitable. It could have a really terrible rate of
9:41:38AM return on all that machinery, but it will have a higher
9:41:41AM operating margin.

9:41:41AM It's just not a measure of profitability.

9:41:46AM Q. Professor, did you hear Dr. Evans argue that any biases in
9:41:51AM the accounting data he relies on can be dealt with by
9:41:54AM comparing documents that -- that have App Store -- the App
9:41:59AM Store's operating margins with a set of other online market
9:42:03AM prices?

9:42:03AM A. I'm aware of that. And -- if they were really comparable,
9:42:09AM fully comparable across the board, that might be a -- a fair
9:42:14AM argument. But he hasn't shown comparability.

9:42:16AM And I -- I know a bit about these other stores, but it's
9:42:21AM not in the record, so let me just say that Apple stands out as
9:42:26AM selling devices, and Apple stands out as putting a lot of
9:42:31AM R & D into devices and the operating system, which benefit and
9:42:37AM pull transactions through the App Store.

9:42:39AM I don't think any of the other comparisons that he has
9:42:45AM have that characteristic, and he certainly hasn't shown that

9:42:50AM they're sufficiently similar for his argument to be valid.

9:42:54AM Q. Did you hear or read Mr. Sweeney's testimony agreeing that
9:42:58AM if someone were to point at one product or service that his
9:43:03AM company offers and declare a precise profit margin for it,
9:43:07AM that assessment would be fundamentally flawed?

9:43:10AM A. I did and -- and he gave the reason. And that's because
9:43:13AM in the -- in the Epic Game Store and the Epic operation,
9:43:17AM the -- technology is developed -- it's used in multiple places
9:43:24AM in the business, and you can't allocate that joint cost in any
9:43:28AM way that's not arbitrary among products or services.

9:43:32AM Q. Does -- does the same problem affect the estimates of the
9:43:40AM App Store's operating margin that Dr. Evans has relied on?

9:43:44AM A. Yes. R & D that affects the -- that improves the
9:43:48AM operating system, that improves the devices, is a joint cost.
9:43:52AM It will benefit sales of those devices. It will also benefit
9:43:57AM transactions in the App Store. And there are simply no
9:44:01AM nonarbitrary way to allocate costs like that among lines of
9:44:06AM business.

9:44:09AM Q. And why is the concept of joint costs relevant here?

9:44:14AM A. Well, let me say -- let me give the classic example of a
9:44:18AM joint cost just to -- just to be -- be clear, if I may.

9:44:22AM The classic example from somebody in the 19th Century is
9:44:27AM raising steers to produce both meat and hides. And the cost
9:44:33AM of feed for the steer -- for a steer can't be allocated
9:44:39AM between meat and hide. There's no unambiguous way to --

9:44:43AM there's no nonarbitrary way to do that.

9:44:46AM Similarly, R & D that affects all aspects of Apple's
9:44:51AM business can't be allocated to individual lines of business or
9:44:55AM parts of the business in a way that isn't just arbitrary.

9:45:01AM Q. What -- what, then, would be the correct approach to
9:45:03AM analyzing the App Store's economic -- economic profitability?

9:45:08AM A. Mr. Swanson, this is like asking me the best way to square
9:45:12AM the circle. You can't do it. There is simply no economically
9:45:16AM meaningful way to allocate joint costs among several products
9:45:22AM or services.

9:45:25AM Q. Professor, do you believe it's important to consider
9:45:27AM output in the analysis of competitive or alleged
9:45:31AM anti-competitive effects?

9:45:32AM A. I do. That was a major part of -- major argument in the
9:45:38AM amicus brief that Dr. Evans and I filed in the *AmEx* case.

9:45:43AM Q. And, you know, what -- what was the point you made in that
9:45:46AM amicus brief?

9:45:47AM A. Well, I -- I don't have the language off the top of my
9:45:51AM head, but basically when -- when the price -- particularly
9:45:56AM when the pricing system's complicated. I don't think it was
9:45:59AM that complicated in *AmEx*. But when the pricing system is
9:46:02AM complicated, it may be hard to figure out what is the price.
9:46:04AM Did the price go up or down.

9:46:06AM Here, you can argue about what the commission rate is
9:46:10AM depending on how you treat free transactions. But output is

typically an easier quantity -- at least the dollar value of output is an easier quantity to measure. And the argument we -- we made is that without proof that there is an output restriction flowing from the challenged practice, there's no reason to think it's anti-competitive. That ought to be a first requirement.

Q. In your opinion, has Dr. Evans assessed whether Apple's conduct has restricted output?

A. He hasn't. I believe he's -- he's considered output, but he hasn't really analyzed it. And if you look at it, the results are pretty dramatic.

I mean, in the *AmEx* case, the Supreme Court observed that there was a 30 percent -- excuse me -- a 30 percent increase in output over -- over five years. I think that was in payment card output, and it called that dramatic. That is, I think, a 5.4 percent annual rate of growth, which means that output doubles in 13 years, more or less, which is pretty dramatic.

Here, both developer revenue from game apps and developer revenue from all apps increased at around 50 percent a year from 2010, when Dr. Evans said the App Store became a monopoly, through 2018. That's doubling in less than 2 years.

If 5.4 percent is dramatic, this is wildly dramatic. And, you know, it was a good period for -- for IP in general and for games in general, so one -- one wants to ask -- one wants

9:48:01AM to look for a different benchmark.

9:48:03AM There is a third-party estimate of total spending on
9:48:07AM digital game transactions over that same period, 2010 to 2018.
9:48:13AM And it shows industry-wide growth about half as rapid as
9:48:19AM growth through the App Store.

9:48:21AM Now, if when Apple became a monopoly in 2010, it put the
9:48:27AM brakes on output growth in order to increase its profit, you
9:48:32AM wouldn't expect that. You would expect growth in the App
9:48:35AM Store to be less than market wide growth. Instead, as far as
9:48:40AM we can tell, it was noticeably more rapid.

9:48:43AM In any case, Dr. Evans has not shown any output
9:48:47AM restriction.

9:48:51AM **Q.** Professor Schmalensee, just like to wrap this up with a
9:48:55AM final question or two. Your --

9:48:59AM Well, let me -- let me ask you this generally. Do
9:49:03AM Dr. Evans' arguments in this case have economic implications
9:49:07AM for the business models of the console manufacturers?

9:49:10AM **A.** Oh. They do. Dr. Evans argues that requiring all apps to
9:49:16AM go through your App Store is -- is a violation, or -- or he
9:49:22AM supports Epic's contention it's a violation and that using
9:49:25AM your own -- requiring the use of your own payment system is a
9:49:29AM tie.

9:49:29AM The console manufacturers do both. And he's attempted to
9:49:34AM distinguish them. He says, well, they're smaller. That's
9:49:38AM true. And they don't make money on hardware. That may well

9:49:43AM be true. It's the general understanding. But what Dr. Evans
9:49:47AM hasn't done is to show why that matters, to show why if
9:49:52AM Apple's conduct is -- is illegal because of those aspects, why
9:49:57AM the console manufacturers don't have the same problem.

9:50:03AM **Q.** Do Dr. Evans arguments have implications for the business
9:50:06AM models of -- of any other online app stores?

9:50:09AM **A.** Well, they do. And I gather Professor Rubinfeld's going
9:50:14AM to discuss some broad implications. But let me just say this:
9:50:18AM I mentioned -- didn't manage a complete list, but I've
9:50:21AM mentioned a number of online app stores that require use of
9:50:26AM their own payment systems to collect commissions.

9:50:30AM Dr. Evans would say that's a tie. And he's argued that
9:50:34AM that's a tie. Well, if that's a tie, then both Apple and all
9:50:40AM of these other stores have to try to figure out some other
9:50:44AM way, likely more expensive way, to collect commissions.

9:50:51AM **Q.** And finally, Professor Schmalensee, do Dr. Evans'
9:50:56AM arguments have implications for potential new operating system
9:51:01AM entrants?

9:51:01AM **A.** Sure. Dr. Evans has said that Apple didn't have to open
9:51:05AM its system to third-party applications when it did in 2008.
9:51:11AM But if it had, since it did, in 2010, it should have basically
9:51:17AM adopted the remedy that Epic seeks, dropping the exclusivity
9:51:22AM on distribution and dropping the requirement to use IAP.

9:51:28AM Well, if I were a new entrant, I would realize that if I
9:51:34AM opened my system to third-party app developers and if I were

9:51:38AM successful and if Epic prevails here, then I would have to
9:51:43AM radically change my business model if I were very successful.

9:51:47AM The safe thing would be not to allow third-party apps in
9:51:51AM the first place. And given how successful the iOS ecosystem
9:51:59AM has been with third-party apps for the benefit of consumers,
9:52:03AM app developers, and indeed Apple itself, that would be an
9:52:06AM unfortunate choice.

9:52:08AM Q. Right.

9:52:08AM Thank you. Professor Schmalensee.

9:52:10AM I pass the witness.

9:52:12AM THE COURT: Cross?

9:52:12AM THE WITNESS: May I sneak a drink of water while
9:52:20AM they --

9:52:21AM THE COURT: Absolutely.

9:52:21AM THE WITNESS: -- relief pitcher comes in? Yeah.

9:52:24AM THE COURT: Any time you need it, just let us know.

9:52:27AM (Pause in the proceedings.)

9:52:27AM THE COURT: You may proceed, Mr. Bornstein.

9:52:53AM MR. BORNSTEIN: Thank you, Your Honor. Gary
9:52:54AM Bornstein for Epic.

9:52:27AM **CROSS-EXAMINATION**

9:52:27AM BY MR. BORNSTEIN:

9:52:27AM Q. Professor Schmalensee, nice to see you again.

9:52:57AM A. Good to see you again, Mr. Bornstein.

9:53:00AM Q. Almost in person this time with a little plexiglass

9:53:03AM between us.

9:53:04AM A. Almost. Almost.

9:53:05AM Q. Let me just start with the last topic you discussed with
9:53:08AM Mr. Swanson. Your testimony, if I understood it, was that a
9:53:12AM potential new operating system entrant would look at the
9:53:16AM possibility that Apple was required to open its system and
9:53:22AM would decide that the right thing to do would be not to have
9:53:28AM third-party apps at all?

9:53:30AM Did I understand that correctly?

9:53:33AM A. I didn't say it would necessarily be the decision. I
9:53:36AM would say that the thought of having third-party apps and then
9:53:40AM facing the -- the potential of having to change business
9:53:43AM model -- after all, Apple only had the App Store for two years
9:53:47AM before Dr. Evans said it was a monopoly.

9:53:50AM Q. I'm sorry.

9:53:50AM (Simultaneous colloquy.)

9:53:51AM THE WITNESS: -- consideration.

9:53:52AM BY MR. BORNSTEIN:

9:53:52AM Q. -- just asked if I --

9:53:52AM A. I'm sorry.

9:53:52AM Q. -- if I understood your testimony correctly.

9:53:54AM A. May I hear your question.

9:53:58AM Q. Okay.

9:53:58AM Did you testify that a -- a potential new entrant would
9:54:04AM conclude that the right thing to do may be not to offer

9:54:09AM third-party apps at all?

9:54:10AM **A.** I didn't say it would conclude that the right thing to do
9:54:16AM would be to not be to offer third-party apps. I said it would
9:54:20AM take that possibility into consideration.

9:54:21AM **Q.** And it would weigh that against the indirect network
9:54:24AM effects that you've testified about so much, which would
9:54:29AM clearly benefit the operating system provider if it had
9:54:33AM third-party apps, correct?

9:54:33AM **A.** It would benefit it until it got sufficiently successful
9:54:39AM to fall afoul of whatever would be established in this case if
9:54:44AM Epic prevails.

9:54:45AM **Q.** And your testimony is that a -- an operating system
9:54:48AM provider would actually consider not having third-party apps
9:54:51AM in order to avoid the possibility that it would become so
9:54:55AM successful that it would at that point need to open up its
9:55:01AM system?

9:55:01AM Do you think that's a reasonable outcome here?

9:55:03AM **A.** Well, I don't know what "so successful" is. I do know
9:55:06AM that an alternative --

9:55:08AM **Q.** I'm sorry. I didn't ask about an alternative. I asked if
9:55:11AM you thought that was a reasonable outcome here.

9:55:13AM **A.** It is a plausible outcome is -- it is a possible outcome.
9:55:17AM Is it inevitable? No.

9:55:21AM **Q.** And, in fact, in the real world, when Apple launched the
9:55:23AM iPhone without third-party apps, it quickly realized that in

9:55:27AM order to have the kind of success that it's had, it needed to

9:55:31AM open the store, over Mr. Jobs' initial objection; isn't that

9:55:34AM right?

9:55:35AM **A.** I'm unaware of the internal debate, but that is -- that is

9:55:40AM certainly what happened.

9:55:41AM **Q.** Okay.

9:55:42AM **A.** It could --

9:55:43AM **Q.** Thank you?

9:55:43AM **A.** -- have engaged in --

9:55:45AM **Q.** Thank you.

9:55:48AM **MR. SWANSON:** Your Honor, can Professor Schmalensee

9:55:49AM be allowed to finish his answers?

9:55:51AM **THE COURT:** You have -- he's a world-renowned expert.

9:55:55AM I am sure he has dealt with cross-examination before. He

9:55:57AM seems to be managing just fine. You'll have redirect.

9:56:00AM Proceed.

9:56:02AM **BY MR. BORNSTEIN:**

9:56:02AM **Q.** And I'll do my best not to be rude, so I'd just appreciate

9:56:05AM if I have an answer to the question, and Mr. Swanson will give

9:56:08AM you an opportunity to expound, if -- if that's appropriate.

9:56:10AM **A.** I recognize that.

9:56:11AM **Q.** Thank you. I thought we did well last time. Hope we do

9:56:15AM well again.

9:56:15AM **A.** It was a civilized deposition. I will say that.

9:56:18AM **Q.** Thank you.

9:56:20AM I'd like to go back to a conversation that you had about
9:56:22AM the anti-steering rules a little earlier this morning.

9:56:24AM Do you remember that discussion?

9:56:26AM **A.** Vividly.

9:56:26AM **Q.** And you testified that your understanding of the rules --
9:56:29AM again if I heard you correctly, was that they prohibit a call
9:56:33AM to action saying that the -- the user may save money; is that
9:56:38AM right?

9:56:38AM **A.** I think "call to action" may be the phrase in the rule, in
9:56:43AM fact, yes.

9:56:43AM **Q.** Okay.

9:56:43AM But the rule goes further than just prohibiting a call to
9:56:46AM action and indicating that it would save the user money.
9:56:51AM Right? It goes further than that.

9:56:55AM **A.** Well, you'll to have quote me the rule. I thought that
9:56:57AM was the core of the rule.

9:56:59AM **Q.** Well, the rule also prohibits any call to action at all,
9:57:03AM even if it doesn't say something about the price available on
9:57:05AM to alternative platform.

9:57:06AM Isn't that correct?

9:57:07AM **A.** I'd have to hear the rule to be sure.

9:57:11AM **Q.** Okay. You don't know sitting here now?

9:57:14AM **A.** I've heard it, but I'd need to hear it again to be
9:57:17AM positive.

9:57:17AM **Q.** Okay.

9:57:17AM And so do you -- do you know one way or the other whether
9:57:20AM the rule goes even further and prohibits targeted
9:57:25AM communications outside of the app to users, such as through
9:57:30AM email that have been registered through the app?

9:57:32AM Do you know that?

9:57:33AM A. It does, I believe, prohibit that. It doesn't -- it
9:57:38AM prohibits taking advantage of the linkage to communicate the
9:57:43AM existence of an alternative.

9:57:44AM Q. Right.

9:57:44AM It prohibits communication sent to points of contact that
9:57:48AM are targeted, such as targeted emails to users.

9:57:53AM A. That's my understanding.

9:57:58AM Q. Okay.

9:57:58AM One other issue that you discussed with -- with
9:58:01AM Mr. Swanson this morning I want to touch on, but -- actually,
9:58:04AM maybe more than one.

9:58:07AM You testified that the market that was at issue in the
9:58:15AM in-app purchase payment solution field was -- I think you
9:58:22AM testified relatively small; is that right?

9:58:24AM A. Well, I didn't endorse that market definition. What I
9:58:34AM intended to say was if anything's been foreclosed by IAP, IAP
9:58:40AM is relatively -- is small relative to the universe of in-app
9:58:45AM payment processing.

9:58:46AM Q. All right. So you're talking about relative smallness
9:58:50AM rather than absolute dollar figures.

9:58:52AM A. Absolutely.

9:58:52AM Q. Okay.

9:58:53AM And do you know what the --

9:58:54AM A. That's what I -- that's what I said. Sorry.

9:58:56AM Q. That -- that's fine. That's why I asked the question.

9:58:59AM Do you know what the absolute dollar figures are that have
9:59:00AM been foreclosed by this conduct?

9:59:02AM A. Oh, I could estimate, but I don't know them off the top of
9:59:11AM my head. They're in the billions, obviously. But I don't
9:59:13AM have them on the top of my head.

9:59:15AM Q. The tens of billions, right?

9:59:17AM A. On that order, yes. But "small" relative to the world of
9:59:22AM online payment processing.

9:59:24AM Q. And earlier during Mr. Swanson's examination, you talked
9:59:29AM about what I believe you called an iOS platform that had
9:59:32AM multiple elements to it.

9:59:34AM Do you recall that?

9:59:35AM A. I -- yeah, let me be clear. I talked about the iOS
9:59:43AM business as a platform that had multiple elements.

9:59:47AM Q. Fair enough.

9:59:47AM A. So I talked about the business, yeah.

9:59:49AM Q. And -- and you talked about three elements, correct?

9:59:52AM A. I did, yes.

9:59:53AM Q. And one of them was the device itself, the hardware,
9:59:55AM correct?

9:59:56AM A. Correct.

9:59:57AM Q. One of them was the iOS operating system, correct?

10:00:01AM A. Correct.

10:00:02AM Q. And the third one was the -- the App Store; is that --

10:00:06AM A. Correct.

10:00:07AM Q. And those are three separate, identifiable pieces of

10:00:13AM this -- of this iOS business; isn't that right?

10:00:16AM A. Well, they're identifiable in one sense that you can point

10:00:22AM to them, as you just did, and we can say that the operating

10:00:26AM system is distinct from the hardware.

10:00:28AM They're not distinct in the sense that --

10:00:30AM Q. Thank you, sir.

10:00:30AM A. -- separate costs.

10:00:31AM Q. -- answered the question.

10:00:32AM A. Sorry.

10:00:33AM Q. Now, but let's take the -- take that -- that taxonomy and

10:00:40AM apply it over to a different device.

10:00:42AM So you're familiar with Microsoft, obviously, as you

10:00:48AM testified, correct?

10:00:48AM A. It's been a while, Counsel, but, yes, I'm broadly familiar

10:00:52AM with Microsoft.

10:00:53AM Q. So Microsoft has an operating system called Windows.

10:00:56AM A. They do.

10:00:56AM Q. And Windows runs on laptop computers like Lenovo

10:01:01AM computers?

10:01:01AM A. Which is exactly what I have, yes.

10:01:04AM Q. I do, too.

10:01:05AM And you can also get on your Lenovo computer running a
10:01:10AM Windows operating system an online marketplace such as Steam,
10:01:15AM correct?

10:01:15AM A. Yes.

10:01:16AM Q. And those are three separate elements of the platform that
10:01:21AM you would then be using, correct?

10:01:23AM A. Well, I wouldn't consider Steam an element of the
10:01:26AM Microsoft platform since Steam is owned by Valve, as I recall.

10:01:30AM Q. And so the only reason that you consider the three
10:01:36AM elements of the iOS business as part of the platform is that
10:01:40AM they're all owned by Apple?

10:01:42AM A. Right. And they have joint costs and they -- there are
10:01:46AM indirect network effects linking them and so on and so forth.
10:01:50AM But that's why I described the business.

10:01:52AM Q. Right.

10:01:52AM So it is the -- the integrated nature of this as a result
10:01:56AM of Apple's choice as to how to run its business rather than an
10:02:02AM inherent feature of any of these particular products, correct?

10:02:05AM A. Not sure what you -- sorry. Not sure what you mean by an
10:02:10AM inherent feature, but it is certainly Apple's choice as to how
10:02:14AM to organize its business.

10:02:15AM Q. And it is Apple's choice as to how to organize its
10:02:18AM business that is the reason that you testify that these are

10:02:21AM integrated with one another, correct?

10:02:23AM A. I was describing Apple's business, yes.

10:02:26AM Q. Thank you.

10:02:26AM Let -- let's turn back to two-sided platforms. Am I
10:02:33AM correct that the -- a two-sided analysis of the business is
10:02:41AM neither pro-defendant nor pro-plaintiff?

10:02:45AM A. You asked that in my deposition, and I answered that is
10:02:48AM correct, and it's still correct.

10:02:50AM Q. Great.

10:02:50AM And in the wake of the *AmEx* decision that we've talked
10:02:55AM about for some time, there were a number of commentators who
10:03:00AM took a contrary view, correct?

10:03:02AM A. There were some, yes; that's correct.

10:03:07AM Q. And you took to the airwave, so to speak, or the -- the
10:03:12AM print airwaves to dispute that notion, correct?

10:03:15AM A. Along with Dr. Evans, yes.

10:03:17AM Q. Yes, indeed. And you said that the two-sided analysis
10:03:22AM does not make platform bases a no-go zone for the antitrust
10:03:26AM laws, correct?

10:03:27AM A. I don't know if I used those words or if John Troll used
10:03:31AM those words, but I agree with them.

10:03:32AM Q. Great.

10:03:32AM And you still agree with them today?

10:03:35AM A. I do.

10:03:36AM Q. And you have in this matter opined that if the core firms

10:03:43AM under review are two-sided transaction platforms, then under

10:03:51AM *AmEx* only other two-sided transaction platforms should be

10:03:55AM considered in the market, correct?

10:03:56AM **A.** Well, let me be clear, Counselor. My understanding was --

10:04:01AM **Q.** I'm sorry. The question first, is that an opinion that

10:04:04AM you have expressed in this case, sir?

10:04:05AM **A.** Let me -- if I used those words, then I used those words.

10:04:12AM But it's a question of what "under *AmEx*" means.

10:04:15AM **Q.** Well, is -- is that a legal opinion that you offer?

10:04:17AM **A.** It would have been a legal opinion because it has been

10:04:22AM argued that *AmEx* compels exclusion of single-sided competitors

10:04:27AM from market definitions. Single-sided competitors, obviously,

10:04:31AM compete with two-sided platforms, as Dr. Evans and I have both

10:04:36AM said.

10:04:36AM **Q.** Right. So you -- you agree that single-sided businesses

10:04:41AM can compete --

10:04:43AM **A.** Businesses.

10:04:43AM **Q.** -- with a two-sided platform in a single market, right?

10:04:48AM **A.** I do, yes.

10:04:49AM **Q.** And, in fact, you have taken the position that this case

10:04:52AM presents such a market.

10:04:53AM Correct?

10:04:54AM **A.** I've taken the position that direct distribution can, in

10:05:04AM principle, compete with distribution through app stores, yes.

10:05:08AM **Q.** Right.

10:05:08AM You -- you, in fact, have gone further than that, and you
10:05:11AM said that direct distribution does compete with online market
10:05:16AM places like two-sided platform app stores, correct?

10:05:21AM A. Where direct distribution happens, it competes with app
10:05:24AM stores, yes.

10:05:26AM Q. Right.

10:05:26AM It doesn't happen on the iOS platform because Apple
10:05:28AM forbids it.

10:05:30AM A. That's why I was hedging.

10:05:32AM Q. All right.

10:05:32AM And that makes the market at issue here, unlike the market
10:05:36AM in *AmEx*, a hybrid market, consisting of both two-sided
10:05:41AM businesses or two-sided platforms and single-sided businesses,
10:05:46AM correct?

10:05:46AM A. I think that's right. The market in *AmEx* was clearly
10:05:50AM composed of two-sided platforms unless you include cash, and
10:05:56AM then it gets be -- but it wasn't included.

10:05:58AM Q. And so as an economic matter, we're dealing with something
10:06:00AM different from *AmEx* in that respect, correct?

10:06:02AM A. In that respect.

10:06:04AM Q. Very good.

10:06:05AM Now, one of the things as we've talked about some this
10:06:08AM morning that makes the analysis of two-sided platforms more
10:06:13AM complicated is the existence of indirect network effects,
10:06:18AM correct?

10:06:19AM

A. That's correct.

10:06:20AM

Q. And you talked a little bit about a feedback effect this morning, correct?

10:06:23AM

A. I did.

10:06:23AM

10:06:25AM

Q. And depending on the particular platform at issue, those feedback effects can be stronger or weaker, correct?

10:06:31AM

10:06:34AM

A. Correct. Except in the case of transaction platforms, they're generally strong.

10:06:36AM

10:06:38AM

Q. And -- and there are particular names that economists use to describe the -- the strengths of these things. You used some this morning, like cross-price elasticity and so forth.

10:06:44AM

10:06:48AM

A. Well, I don't think I said "cross-price elasticity." I could have, but we tend to use elasticities as a measure of strength.

10:06:52AM

10:06:55AM

10:06:59AM

Q. And in analyzing a two-sided platform and the potential competitive consequences of conduct relating to that platform, it is important to consider the strength of the indirect network effects at issue, fair?

10:07:10AM

10:07:14AM

10:07:18AM

A. Yes.

10:07:19AM

10:07:21AM

Q. And you haven't done anything in this case to analyze the strength of the indirect network effects associated with the App Store, correct?

10:07:26AM

10:07:29AM

A. As I think I said in my written testimony, I don't think this record has information that would permit one to estimate that strength.

10:07:30AM

10:07:34AM

10:07:36AM

10:07:37AM Q. But you do recognize, I believe, that most smartphone
10:07:42AM users have either an iOS or an Android but not both, correct?
10:07:49AM A. I certainly recognize that.
10:07:50AM Q. And that's something that the antitrust folks like you --
10:07:53AM excuse me -- the economics folks like yourself call
10:07:56AM "single-homing," right?
10:07:58AM A. Yeah. For unfortunate reasons, yes.
10:08:00AM Q. And in single-homing situations, competition between
10:08:06AM customers is typically a winner-take-all struggle for all of
10:08:11AM the business from the users on the single-homing side of the
10:08:16AM platform, correct?
10:08:17AM A. It has aspects of that, but it depends in part on
10:08:20AM switching costs. The notion that a competitor will get all of
10:08:26AM the buyers on one side requires special extra assumptions.
10:08:32AM Q. Right.
10:08:32AM The higher the switching costs, the more likely it is that
10:08:36AM there will be a winner-take-all situation, correct?
10:08:38AM A. Well, you need more than that. You need there only to be
10:08:41AM one or a dominant competitor trying to capture those folks
10:08:47AM just because --
10:08:48AM Well, let me stop there.
10:08:49AM Q. Okay. Well, sir, you've written, haven't you, that
10:08:52AM competition for single-homing customers is a winner-take-all
10:08:57AM struggle for all of their business, right?
10:08:59AM Those are your words.

10:09:01AM A. I must have said it if you -- if you tell me I said it.

10:09:05AM It seems pretty careless to me because if there are two of us

10:09:09AM competing, it's not obvious why one of us will get them all.

10:09:14AM Q. You don't dispute that you've written that -- that you've

10:09:17AM written that in an academic journal, sir?

10:09:20AM A. Boy, I'd love to see the context. It seems very -- a very

10:09:24AM strange statement for me to make, because it doesn't make --

10:09:27AM of course, I do make sentences that don't make a lot of sense.

10:09:30AM But that one doesn't seem to make a lot of sense.

10:09:32AM Could you show me the context in which I said it

10:09:35AM because --

10:09:35AM Q. I'll give you a little more information to start, sir.

10:09:37AM You remember an instant classic? That's something you

10:09:40AM wrote?

10:09:40AM A. Oh, yeah, yeah, yeah. This is -- this is about -- okay.

10:09:44AM Yeah. This is --

10:09:46AM (Simultaneous colloquy.)

10:09:47AM Q. You remember writing that, sir.

10:09:49AM A. I'm happy to describe it and say why I said what I said,

10:09:52AM if you like that.

10:09:53AM Q. Well, let me read to you first the prior -- well, we can

10:09:55AM pull it up on the screen perhaps. That might make things

10:09:59AM easier.

10:09:59AM PX1997.

10:10:01AM (Exhibit published.)

10:10:04AM **BY MR. BORNSTEIN:**

10:10:04AM **Q.** And I'm looking at page 177.

10:10:08AM (Exhibit published.)

10:10:18AM **MR. BORNSTEIN:** Great.

10:10:18AM **Q.** And we can see the prior sentence there in the middle of
10:10:20AM the -- the middle paragraph on the middle of the page. You
10:10:24AM say, "In the case of smartphone operating systems, for
10:10:27AM instance, most consumers single-home at any one time while
10:10:32AM many developers multi-home by writing apps for both Android
10:10:36AM and Apple's iOS."

10:10:38AM **A.** Ah.

10:10:39AM **Q.** And then you go on, "competition for single-homing
10:10:42AM customers is a winner-take-all struggle for all of their
10:10:45AM business."

10:10:45AM Correct?

10:10:46AM **A.** Yeah.

10:10:48AM **Q.** That --

10:10:48AM (Simultaneous colloquy.)

10:10:49AM **THE WITNESS:** I did say that, and I will now explain
10:10:51AM that you -- you've kind of misinterpreted what I meant.

10:10:54AM **BY MR. BORNSTEIN:**

10:10:54AM **Q.** Well, let me --

10:10:55AM (Simultaneous colloquy.)

10:10:55AM **BY MR. BORNSTEIN:**

10:10:55AM **Q.** Excuse me, sir.

10:10:57AM **A.** Can I explain what that means?

10:10:59AM **Q.** Well --

10:10:59AM **THE COURT:** Probably on redirect.

10:11:01AM **THE WITNESS:** Okay. Then I do not doubt that I said
10:11:05AM those sentences -- wrote those sentences.

10:11:07AM **BY MR. BORNSTEIN:**

10:11:08AM **Q.** And it is, in fact, the case that when there are switching
10:11:13AM costs that are high and when you have customers who
10:11:17AM single-home for that reason, then the situation is much closer
10:11:24AM to or resembles the situation in which there is a monopoly
10:11:28AM provider, correct?

10:11:29AM **A.** Well, we're now completing mixing modes, and I'd say no.
10:11:32AM I'd say this is completely unrelated to switching costs, and
10:11:35AM we'll -- we'll spend some time on it on redirect, but it is
10:11:39AM unrelated to switching costs.

10:11:41AM **Q.** Sir --

10:11:42AM **A.** It's a very simple point.

10:11:43AM **Q.** Sir, you do remember your deposition, right? We talked
10:11:45AM about it a little bit already.

10:11:46AM **A.** I do remember that, and I'm happy to say I said what you
10:11:50AM said in my deposition. I'm only saying that it's unrelated to
10:11:52AM this. And it says if there's -- if I can't switch platforms,
10:11:56AM then the platform's a monopoly.

10:11:58AM **Q.** Right. So --

10:11:59AM **A.** That's simple.

10:12:00AM There may be multiple suppliers on the other side of the
10:12:03AM platform. But as far as the platform's concerned, if by the
10:12:07AM assumption you gave me, I can't switch platforms, yeah, then
10:12:11AM it's a monopoly.

10:12:13AM Q. Right.

10:12:13AM And -- and what you testified was that if the reason
10:12:16AM consumers single-home is that it's very difficult for them to
10:12:20AM switch, then the situation resembles the situation with a
10:12:23AM monopoly provider, correct?

10:12:25AM A. By definition. By assumption.

10:12:28AM Q. And so when one side single-homes, the feedback effect
10:12:33AM that you talked about earlier is weaker. Correct?

10:12:35AM A. Those are not closely related. Single-homing has to do
10:12:46AM with what do you -- what do you normally do. If you are
10:12:52AM single-homing because there are strong switching costs, then
10:12:55AM the feedback effects are attenuated.

10:12:58AM And of course, different people will always have different
10:13:01AM switching costs, but that's right.

10:13:03AM Q. All right.

10:13:03AM (Simultaneous colloquy.)

10:13:03AM THE WITNESS: Single-homing by itself doesn't do the
10:13:06AM trick you want it to do.

10:13:07AM BY MR. BORNSTEIN:

10:13:07AM Q. And that was my question, sir. When you have
10:13:08AM single-homing and there are high switching costs, then the

10:13:12AM feedback effect is weaker, correct?

10:13:15AM A. That's correct.

10:13:16AM Q. All right.

10:13:16AM And what you call the death spiral would be weaker,
10:13:20AM correct?

10:13:20AM A. Well, I didn't use the "death spiral" this morning, but
10:13:23AM it's in my testimony someplace.

10:13:25AM Q. And here, we have a situation in which developers on the
10:13:31AM other hand are motivated to multi-home because consumers don't
10:13:36AM often switch, right, between iOS and Android?

10:13:39AM A. Consumers do switch, but the switching probabilities are
10:13:42AM relatively low under current conditions.

10:13:44AM Q. Consumers don't often switch. "Yes" or "no," sir?

10:13:48AM A. The numbers are what they are. And if you declare that
10:13:50AM "not often," I'll accept your characterization.

10:13:53AM Q. Let's look at your deposition, sir. I think it's --

10:13:56AM THE COURT: I need a copy of it.

10:13:58AM MR. BORNSTEIN: Of course, Your Honor.

10:13:59AM THE COURT: And you have two minutes.

10:14:07AM Thank you.

10:14:12AM MR. BORNSTEIN: May I approach, Your Honor?

10:14:13AM THE COURT: You may.

10:14:15AM MR. BORNSTEIN: (Handing document.)

10:14:17AM THE WITNESS: Thank you.

10:14:21AM MR. BORNSTEIN: And, Your Honor, I'm looking at

10:14:22AM page 48, starting at line 15.

10:14:37AM **THE COURT:** Well --

10:14:38AM **THE WITNESS:** Pagination's off.

10:14:39AM **THE COURT:** There are a couple of sentences there,
10:14:41AM Mr. Bornstein.

10:14:41AM What do you want him to do, just look at it? He --

10:14:46AM **MR. BORNSTEIN:** I apologize, Your Honor. I didn't
10:14:48AM hear what you said.

10:14:49AM **THE COURT:** I said there are a couple of sentences
10:14:51AM there. I don't see impeachment.

10:14:53AM **MR. BORNSTEIN:** Well, I'll -- I'll read it into the
10:14:55AM record, Your Honor, and we can go from there.

10:14:56AM Question was "And what is the economic motivation that the
10:15:00AM developer has to write for both devices?

10:15:03AM "A. Consumers don't often switch."

10:15:05AM Did -- did you give that testimony, sir?

10:15:08AM **THE COURT:** But, Mr. Bornstein, that's why I said
10:15:10AM there's not impeachment, because he then said they do switch
10:15:13AM from time to time.

10:15:14AM **MR. BORNSTEIN:** Correct, Your Honor.

10:15:15AM **THE COURT:** Okay. Which is consistent with what he
10:15:20AM testified to. That's why there was no impeachment.

10:15:22AM **MR. BORNSTEIN:** I understand what Your Honor is
10:15:24AM saying.

10:15:25AM **THE COURT:** It's 10:15.

10:15:27AM

MR. BORNSTEIN: Very good.

10:15:27AM

THE COURT: Time for a break. We'll stand in recess for 20 minutes.

10:15:29AM

10:15:30AM

(Recess taken at 10:16 A.M.)

10:15:30AM

(Proceedings resumed at 10:35 a.m.)

6

THE COURT: All right. We are back on the record.

10:35:29AM

The record will reflect that the parties are present. The witness is on the stand.

10:35:32AM

10:35:33AM

Before we get started again, Mr. Bornstein, let me ask the parties, there have been a number of exhibits that have been referenced in the earlier exam and with you. I know that I'm agreeing to a stipulation, which is at Docket 635, that I think has, like, four or five pages' worth of exhibits that are coming into the record.

10:35:37AM

10:35:40AM

10:35:47AM

10:35:51AM

10:35:54AM

10:35:56AM

Are all of your documents in the record? I mean, is this something that we need to deal with during the course of the testimony or not?

10:36:03AM

10:36:06AM

10:36:07AM

MR. BORNSTEIN: I don't believe there is anything we need to deal with during the testimony, because the experts wouldn't be laying foundation for the documents. The parties are doing that through stipulation. So I don't think we need to get the documents admitted, unless the Court would like to do it that way.

10:36:09AM

10:36:11AM

10:36:14AM

10:36:17AM

10:36:19AM

10:36:21AM

THE COURT: That's fine.

10:36:21AM

Mr. Doren?

MR. DOREN: Your Honor, I think this reverts back to the issue we discussed this morning in terms of working through the issues with the evidence. So I agree with Mr. Bornstein.

THE COURT: Okay. Then we'll just leave it at that. Thank you.

You may proceed.

MR. BORNSTEIN: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. BORNSTEIN:

Q. Professor Schmalensee, you have testified a number of times before; correct?

A. I have, yes.

Q. Including in a courtroom?

A. Including in a courtroom. It's been a while, but I have.

Q. Okay. So you understand the rule that during your cross-examination and on break, you're not supposed to discuss the content of your testimony with counsel; is that right?

THE COURT: Actually, that's not the rule. There is no rule, and I -- I instruct witnesses when they cannot talk to counsel. I did not instruct him that he could not talk to counsel.

MR. BORNSTEIN: Okay. Thank you, Your Honor.

THE WITNESS: Thank you, Your Honor.

THE COURT: Lawyers are here for a reason. They

10:37:25AM represent people and they help people. The only time that I
10:37:32AM specifically instruct witnesses not to do that -- and I think
10:37:34AM I've done that in this case maybe once or twice -- is when
10:37:37AM we're in the middle of an exam where I think the factual
10:37:41AM issues should not be influenced by lawyers. And that's when I
10:37:45AM make the instruction.

10:37:47AM Proceed.

10:37:48AM **MR. BORNSTEIN:** Thank you, Your Honor.

10:37:49AM **Q.** I'll move to a new topic for the second half of the
10:37:52AM morning session, which is market definition.

10:37:55AM And am I correct, Professor, that your opinion on the
10:38:03AM relevant product markets in this case relies on work done by
10:38:07AM some of the other experts in this matter?

10:38:09AM **A.** Yes.

10:38:10AM **Q.** All right. And in particular, you rely on empirical work
10:38:14AM done by Professor Hitt.

10:38:16AM **A.** Yes.

10:38:17AM **Q.** You have not made an effort to redo or check the accuracy
10:38:20AM of his empirical work; is that right?

10:38:23AM **A.** I have considered the methods he used. I've reviewed his
10:38:26AM testimony. I haven't checked his calculations.

10:38:30AM **Q.** And you didn't go back and check the underlying sources on
10:38:32AM which he relied and so forth?

10:38:35AM **A.** Oh, no, I did not.

10:38:36AM **Q.** You didn't go back and redo any of the analyses that

10:38:39AM Professor Lafontaine did either; correct?

10:38:43AM A. I did not.

10:38:44AM Q. Now, you agree that there's a tool that economists often
10:38:47AM use to define markets called a hypothetical monopolist test;
10:38:52AM correct?

10:38:53AM A. Yes.

10:38:53AM Q. And in theory, at least, I believe you agree that it would
10:39:00AM make sense to apply a hypothetical monopolist test to the
10:39:04AM market for game transactions that Professor Hitt has defined;
10:39:09AM correct?

10:39:10AM A. Yes. That can be done in a number of ways, but, yes, it
10:39:14AM would make sense.

10:39:15AM Q. Okay. And you didn't do that here?

10:39:18AM A. I did not do that.

10:39:19AM Q. And Professor Hitt did not do that here either; correct?

10:39:23AM A. Professor Hitt didn't do it in any detail.

10:39:26AM Professor Lafontaine did attempt to do that.

10:39:29AM Q. So we will hear from Professor Lafontaine, I believe,
10:39:32AM later today, but your understanding is that she performed a
10:39:35AM hypothetical monopolist test; correct?

10:39:37AM A. To the extent that the facts in the record permitted her
10:39:40AM to do that, she attempted to do that.

10:39:43AM Q. All right. And in your understanding, she did that by
10:39:47AM looking at what you called substitution possibilities; right?

10:39:52AM A. Or reasonable interchangeability, substitutability, yes.

10:39:58AM Q. Okay. But without looking at actual substitution;
10:40:00AM correct?

10:40:01AM A. Well, actual substitution isn't very informative if
10:40:03AM nothing changes, right? Because you want to see how
10:40:06AM responsive something might be to a price change, but it's hard
10:40:09AM to estimate that if nothing changes. An actual substitution
10:40:13AM may not be very informative about what a reaction would be.

10:40:17AM Q. And you're saying actual substitution would not be
10:40:20AM informative as a general matter, or you're saying actual
10:40:22AM substitution would not be informative here because there is no
10:40:26AM price change that you have identified?

10:40:28AM A. If there aren't price changes, actual substitution doesn't
10:40:31AM tell you what you need to know, which is reaction to a price
10:40:33AM change.

10:40:34AM Q. You could also have reaction to the introduction of a new
10:40:39AM product involved, however; correct?

10:40:42AM A. You would expect to have a reaction, yes.

10:40:44AM Q. And that's a way that an economist could measure whether
10:40:47AM or not there was actual substitution; correct?

10:40:52AM A. It might shed light on it, yes.

10:40:54AM Q. Okay. And Professor Hitt actually tried to do that in
10:40:57AM this case, did he not?

10:40:58AM A. Professor Hitt did some work on the reaction to the
10:41:03AM introduction of the Switch device, as I recall.

10:41:06AM Q. And in particular, it was to the launch of the *Fortnite*

10:41:10AM app on the Nintendo Switch; correct?

10:41:13AM A. Thank you for the clarification. Yes, that is as I
10:41:16AM understand.

10:41:16AM Q. And his conclusion was that the data that he reviewed
10:41:23AM associated with the launch of *Fortnite* on the Switch showed
10:41:27AM that users actually shifted play time and spending away from
10:41:33AM iOS and towards the Switch; correct?

10:41:36AM A. Well, what he presented in the body of his expert report
10:41:39AM showed that in percentage terms they shifted. His Appendix G,
10:41:43AM which I confess I hadn't focused on before my deposition,
10:41:48AM deals with absolute levels of play and spending, but the text
10:41:52AM deals with relative changes.

10:41:54AM Q. Right. And are you aware that in the written testimony
10:41:58AM that he submitted to the Court in this matter, he again states
10:42:03AM that the results of his analysis clearly showed that users
10:42:08AM shifted their play time and spending away from iOS following
10:42:12AM the launch of *Fortnite* on the Nintendo Switch?

10:42:15AM A. I think that's based on an elaboration of the analysis
10:42:18AM that was contained in Appendix G of his rebuttal report. So I
10:42:22AM do believe that's his conclusion, yes.

10:42:24AM Q. And that's a conclusion, as I think you said, about the
10:42:27AM relative usage of the iOS device and the Switch device for
10:42:32AM playing *Fortnite*; correct?

10:42:34AM A. No. He called my attention and everybody's attention to
10:42:37AM Appendix G in that original report, which deals with absolute

10:42:41AM levels, not relative levels. And I believed he -- I believe
10:42:44AM he focused on that analysis of absolute levels in his written
10:42:48AM testimony.

10:42:49AM Q. And the absolute levels of iOS use and *Fortnite* use show
10:42:58AM that there was an increase in total play; correct?

10:43:02AM A. I believe that's right, yes.

10:43:04AM Q. So your conclusion from reviewing Professor Hitt's
10:43:10AM materials was that the data he relied on did not support the
10:43:16AM strong conclusion he had reached regarding actual
10:43:19AM substitution; correct?

10:43:21AM A. The conclusion -- my testimony says that what was in his
10:43:25AM report, since I kind of missed Appendix G, was all about
10:43:29AM relative play, not about absolute play.

10:43:32AM Q. And then --

10:43:32AM A. And that's what I testified to, that the exhibits I had
10:43:36AM seen didn't support a conclusion on absolute play, again,
10:43:40AM having missed Appendix G.

10:43:42AM Q. So let's just be clear about what his testimony shows and
10:43:46AM doesn't show. And I'm not at all faulting you, sir, for
10:43:50AM having missed an appendix. I'd like to focus on the substance
10:43:57AM rather than having missed an appendix here or there.

10:43:59AM A. Thank you.

10:44:00AM Q. On the substance, Professor Hitt testified, including in
10:44:03AM his written testimony to the Court, that the relative decline
10:44:06AM in iOS *Fortnite* play after the launch of *Fortnite* on the

10:44:12AM Switch indicated actual substitution; correct?

10:44:18AM A. I'd have to review his written testimony to verify that
10:44:21AM that's what he said. And the question is did he, when he said
10:44:24AM that, rely on an elaboration of that Appendix G analysis,
10:44:29AM which I gather is in his written testimony less obscure than
10:44:33AM in his rebuttal report.

10:44:35AM Q. Well, let's do the math, sir.

10:44:37AM You said he looked at percentages, so that means in his
10:44:42AM analysis, he looked at what percentage of people were playing
10:44:46AM *Fortnite* on iOS and then what happened to that number after
10:44:51AM *Fortnite* was launched on the Nintendo Switch --

10:44:54AM A. That was --

10:44:54AM Q. -- correct?

10:44:55AM A. That was one of his analyses, and that was the analysis I
10:44:58AM was speaking of in my deposition.

10:44:59AM He also looked at absolute levels --

10:45:02AM Q. Sir, one question at a time. We'll get there.

10:45:04AM A. Well, but you're asking what he did, and he did two
10:45:06AM things.

10:45:07AM Q. Right. And I was trying to take them one at a time.

10:45:10AM A. Okay.

10:45:10AM Q. So that was one of the things that he did?

10:45:12AM A. Indeed.

10:45:13AM Q. And you believe that that analysis does not show actual
10:45:17AM substitution; correct?

10:45:20AM A. That analysis shows a change in the percentage of time
10:45:24AM played. It doesn't show that what you would expect it to show
10:45:30AM would be that there was a substitute -- a reduction in the
10:45:34AM play of *Fortnite* --
10:45:35AM Q. And it's --
10:45:36AM A. Sorry.
10:45:36AM -- on iOS.
10:45:38AM Q. It's almost a tautology -- in fact, perhaps is a
10:45:42AM tautology -- that the total amount of time on iOS -- excuse
10:45:47AM me -- the percentage of time on iOS would go down when there's
10:45:51AM a new device that's introduced; correct?
10:45:54AM A. Assuming you use the new device, yes. That goes by
10:45:58AM arithmetic.
10:45:59AM Q. Right. And that could happen even if all of the play on
10:46:02AM the new device on the Switch comes from brand-new users or
10:46:08AM comes from incremental new play time rather than people
10:46:13AM switching over from one device to the other; correct?
10:46:16AM A. I believe that's right.
10:46:17AM Q. Just as a matter of math.
10:46:19AM A. Just as a matter of math.
10:46:21AM Q. And then when you look at the absolute numbers, what you
10:46:26AM see is that when *Fortnite* was launched on the Switch, there
10:46:30AM wasn't substitution, but there was a total absolute increase
10:46:34AM in both play and spending; correct?
10:46:39AM A. I believe that's what Mr. Cragg's analysis showed. Again,

I haven't tried to verify the accuracy of his numbers, but that's what the exhibits showed.

Mr. -- Professor Hitt's analysis in his testimony focuses -- takes a different cut at it, reaches a different conclusion.

Q. And that's a conclusion that you don't think is supported by his analysis; correct?

A. I don't think the conclusion he reached about absolute play was supported by the analysis in the text of his rebuttal report.

Whether it's supported by his analysis of levels, I think, is a different matter. And I confess I haven't looked at it closely enough to have a firm opinion.

Q. In the situation in which there is a total increase in -- in play time, that's going to include both new users and people who are playing additional amounts of time. Either of those is possible; correct?

A. Yes.

Q. Rather than just people moving from one over to the other; correct?

A. Of course.

Q. And so in the only instance that any one of Apple's experts looked at of possible actual substitution, what Professor Hitt found was there was an overall increase in play and an insufficient basis to find actual substitution from one

10:48:08AM device to the other; correct?

10:48:12AM A. The part of his analysis -- as I say, he did two pieces.
10:48:16AM The first piece dealt with relative usage, and that didn't
10:48:19AM show actual substitution.

10:48:20AM The second piece, which is in that appendix and I believe
10:48:24AM is also in his written testimony, again, I'm not as familiar
10:48:27AM with it as I might be, but he would argue, and probably will
10:48:31AM argue, that it shows absolute substitution.

10:48:32AM Q. And you don't know, as you sit here now, whether Appendix
10:48:37AM G actually shows absolute quantities; is that right?

10:48:42AM A. Appendix G does, I believe, show absolute quantities.

10:48:45AM Q. And what it shows is there was an increase in overall
10:48:47AM quantities; correct?

10:48:48AM A. It shows there was an increase in play, yes.

10:48:50AM Q. And in revenue.

10:48:52AM A. I believe, yes. There were two charts in that appendix.

10:48:56AM Q. Going back to a hypothetical monopolist test, we've had
10:49:01AM some discussion about a SSNIP test during the trial.

10:49:04AM And a SSNIP test is a way to operationalize the
10:49:09AM hypothetical monopolist test; is that right?

10:49:11AM A. Yes.

10:49:13AM Q. And it's at least possible to do a SSNIP test for a
10:49:16AM two-sided market; correct?

10:49:19AM A. It is possible in theory. Dr. Evans has written a couple
10:49:23AM of papers that indicate how you would do that if you had the

10:49:27AM

data.

10:49:28AM

Q. And you testified this morning and in your written direct

10:49:31AM

that you think Dr. Evans has not done that properly in this

10:49:34AM

case.

10:49:35AM

A. I did testify and I hold that opinion.

10:49:38AM

Q. And that's because, in your view, he didn't have

10:49:40AM

sufficient data to do it the right way.

10:49:44AM

A. Well, I don't think any of us had sufficient data. He

10:49:47AM

made strong assumptions in lieu of having actual quantitative

10:49:52AM

estimates.

10:49:53AM

Q. And in Professor Lafontaine's hypothetical monopolist

10:49:57AM

test, which you believe she performed, she, too, did it

10:50:00AM

without having a precise elasticity; correct?

10:50:03AM

A. Correct.

10:50:04AM

Q. And she nevertheless came up with a market definition that

10:50:10AM

you are comfortable with; correct?

10:50:11AM

A. Yes.

10:50:12AM

Q. Okay.

10:50:13AM

A. She looked at what people did, in fact, without data on

10:50:15AM

SSNIP tests. She looked at reasonable interchangeability.

10:50:20AM

Q. And you take it a step further, and in your written

10:50:24AM

testimony to the Court, you do a hypothetical, hypothetical

10:50:30AM

monopolist test; correct?

10:50:36AM

A. I confess I didn't think of my testimony in that way, but

10:50:38AM

perhaps you can -- you can tell me what you have in mind.

10:50:42AM Q. Sure. Well, you say that you're confident that if you had
10:50:46AM the data to do a test and if you had done the test with that
10:50:51AM hypothetical -- hypothetical data, then you're confident that
10:50:55AM where it would land would be a market supportive of what
10:50:59AM Professor Hitt and Professor Lafontaine have defined; correct?

10:51:03AM A. I don't think I went that far in my written testimony.

10:51:06AM In my oral testimony this morning, I described why it --
10:51:12AM you would get a larger output decline from a price increase.
10:51:17AM I didn't take that to a market definition.

10:51:20AM Q. Well, what you testified in your written direct, sir, was,
10:51:24AM "If the data were available, I believe that a properly
10:51:27AM conducted hypothetical monopolist test would lead to the
10:51:30AM conclusion that the relevant market for deemed transactions is
10:51:35AM broader than the App Store."

10:51:36AM Is that fair?

10:51:38AM A. That's fair.

10:51:40AM THE COURT: Mr. Bornstein, what paragraph?

10:51:42AM MR. BORNSTEIN: Oh, I apologize, Your Honor. That is
10:51:44AM paragraph 106.

10:51:46AM THE COURT: Thank you.

10:51:48AM BY MR. BORNSTEIN:

10:51:48AM Q. The -- there was some discussion this morning about
10:51:51AM Dr. Evans' testimony about distribution.

10:51:56AM Do you recall that?

10:51:57AM A. I do.

10:51:58AM Q. And you took issue with that terminology both in his
10:52:04AM testimony this morning and in some of his written papers;
10:52:06AM correct?

10:52:07AM A. I did. It seemed to suggest a one-sided business.

10:52:09AM Q. Okay. But you acknowledge that Dr. Evans has not looked
10:52:15AM only at the developer's side of the iOS platform in this
10:52:19AM matter; correct?

10:52:21AM A. Well, it depends on the piece of the analysis, but by and
10:52:24AM large, he did not do that.

10:52:25AM Q. Okay. And, in fact, he testified even very directly in
10:52:29AM response to a question from Mr. Swanson on cross-examination
10:52:33AM yesterday. Just tell me if you remember this:

10:52:38AM "Q. Now, the App Store is a two-sided transaction
10:52:41AM platform; isn't that right?

10:52:43AM "A. Yes, it is."

10:52:45AM A. Yeah.

10:52:48AM Q. Do you recall that?

10:52:48AM A. I do recall that.

10:52:50AM Q. That was at page 1347 of the transcript.

10:52:54AM Do you think that Dr. Evans is the first person to talk
10:52:58AM about the App Store as a distribution platform?

10:53:04AM A. I have no idea. I have not followed the discussion in the
10:53:07AM wide world about the App Store.

10:53:09AM Q. All right. Have you seen evidence in the record that
10:53:13AM Apple talks about the App Store as a distribution platform?

10:53:21AM A. I don't honestly recall. I might have done.

10:53:25AM Q. So you're not aware that even in the -- the very first
10:53:30AM meeting in which it was decided with Mr. Jobs to restrict
10:53:35AM distribution on -- on the iOS platform to the App Store, that
10:53:42AM that's exactly how they phrased it, as "Distribution of Apps.
10:53:44AM All apps will be distributed through iTunes or App Store on
10:53:50AM the device. No other distribution method."

10:53:52AM You're not familiar with that?

10:53:55AM A. If I read it, it made no particular impression.

10:53:58AM Q. Okay. And you're not familiar with the white paper, the
10:54:03AM policy paper, that Apple put together entitled "Application
10:54:07AM Distribution and Deployment on macOS X Embedded"?

10:54:14AM A. "macOS X" being the code name for what became the iOS?

10:54:18AM Q. That's right.

10:54:19AM A. Okay. I've probably seen it. I don't have a recollection
10:54:22AM of the language in it.

10:54:23AM Q. So distribution is hardly a novel way to talk about the --
10:54:29AM the App Store; fair?

10:54:31AM A. No. I was just calling -- calling the language for what
10:54:34AM it was. It's a two-sided platform, and one wants to be clear.
10:54:37AM But it is also clear that the Apple people treat it like a
10:54:40AM two-sided transaction platform.

10:54:42AM Q. And it's clear that Dr. Evans also treated it like a
10:54:45AM two-sided platform, as he testified; correct?

10:54:47AM A. By and large, yes.

10:54:50AM Q. Now, you agree that defining the relevant -- in defining
10:54:55AM the relevant market, the starting point for an economist is
10:54:58AM the conduct that's at issue; correct?

10:55:03AM A. Well, it's the conduct at issue and also the effects of
10:55:06AM the conduct at issue.

10:55:09AM Q. And to -- to determine how broad the market should be, you
10:55:16AM look at who the suppliers are that compete with the alleged
10:55:22AM monopolist and who impose a constraint on that firm; fair?

10:55:31AM A. Well, you're -- you're making the assumption that all of
10:55:36AM the -- first of all, that it's an alleged monopolist. It's
10:55:39AM not always an alleged monopolist.

10:55:41AM But you take a look at the products supplied by the firm
10:55:44AM or firms that are the focus of the investigation. You do ask
10:55:49AM about competitive constraints. You might also ask whether it
10:55:52AM makes sense to treat all of the products as a single entity or
10:55:57AM whether there are submarkets -- well, I hate the phrase
10:56:00AM "submarkets," but whether it makes more sense to divide,
10:56:03AM rather than aggregate.

10:56:06AM Q. Right. I appreciate that you want to get there, and I'll
10:56:09AM give you the chance to.

10:56:10AM In this case, the conduct at issue in which Apple has
10:56:14AM engaged is -- that we're focusing on or here with respect to
10:56:21AM app distribution, it applies to all apps; correct?

10:56:24AM A. That's my understanding, yes.

10:56:26AM Q. It's not like it's only games that are prohibited from

10:56:29AM being downloaded directly onto the iPhone. It's all apps;
10:56:33AM right?

10:56:34AM **A.** That's my understanding, yes.

10:56:37AM **Q.** The reason, though, that you, nevertheless, look at a
10:56:40AM market only for what you call game transactions is because
10:56:45AM that is -- you're looking at the question of antitrust injury;
10:56:52AM is that right?

10:56:53AM **A.** Well, I said that in my deposition. I was being careless.
10:56:56AM One looks at injury to competition, and so one wants to be
10:56:59AM clear about where competition occurs.

10:57:02AM I think it's not a matter of who's the injured party but
10:57:07AM where is competition. And the conclusion, which Dr. Hitt
10:57:13AM defends at great length, Professor Hitt, is that the
10:57:16AM competitive conditions are different between games and
10:57:19AM non-games. Indeed, you can argue there are differences in
10:57:22AM non-games.

10:57:23AM **Q.** So, again, the question, sir --

10:57:24AM **A.** Sorry.

10:57:24AM **Q.** I let you go that time.

10:57:27AM **A.** Sorry.

10:57:28AM **Q.** The question was whether you did -- you came to that
10:57:29AM conclusion because you were thinking about antitrust injury.
10:57:32AM And that's -- that's what you testified at your deposition.

10:57:34AM **A.** I said at my deposition, I was being careless. It was
10:57:38AM competitive -- injury to competition, but I did say "antitrust

10:57:41AM

injury."

10:57:42AM

Q. And you testified to that more than once; correct?

10:57:45AM

A. I was careless more than once, yes.

10:57:48AM

Q. You were careless about three or four times?

10:57:50AM

A. Well, you've probably counted. I haven't, but it's quite possible. I think I also said "injury to competition" a few times.

10:57:56AM

10:57:57AM

Q. Well, let's focus -- rather than on terminology, let's focus on substance.

10:58:00AM

10:00:37AM

You did testify --

10:00:43AM

THE WITNESS: Your Honor, may I hit the water again?

10:00:45AM

Thank you.

10:00:46AM

THE COURT REPORTER: I'm sorry. Could we stop for a

10:00:46AM

second?

10:00:46AM

(Court reporter technical problems.)

10:00:46AM

THE COURT: All right. Question.

10:59:45AM

MR. BORNSTEIN: Thank you, Your Honor.

10:59:46AM

Q. So, Professor, if there were a different plaintiff here who was not a company that developed game apps, it is possible, in your view, that you would come to a different conclusion as to the proper market definition; correct?

10:59:53AM

10:59:58AM

11:00:00AM

11:00:04AM

A. Yes, indeed. Given the differences between game apps and non-game apps, if it were a producer of crochet apps, which are available on the iOS platform, I would be inclined to start there and see where one aggregates -- where one

11:00:08AM

11:00:12AM

11:00:16AM

11:00:19AM broadens, rather.

11:00:21AM Q. Again, I let you give a nice answer, but that was a
11:00:24AM yes-or-no question.

11:00:25AM A. Oh, I'm sorry.

11:00:29AM Q. So if, for example, I take your -- I will take you up on
11:00:31AM what you said -- a crocheting app was the plaintiff here, you
11:00:36AM would define the market at least starting with the category, I
11:00:40AM suppose, of crocheting apps; right?

11:00:42AM A. I would start there. I would probably broaden pretty
11:00:45AM quickly. Yes.

11:00:46AM Q. And if, for example, the Match Group were the plaintiff,
11:00:50AM you would start with dating apps; correct?

11:00:54AM A. Again, that's the starting point, not the ending point.

11:00:57AM Q. And if there were a class action of developers, you would
11:01:02AM start by looking at multiple apps and consider the possibility
11:01:06AM of multiple markets; is that accurate?

11:01:10AM A. I might. I mean, a class action raises a whole set of
11:01:15AM issues about class certification and all, so I wouldn't want
11:01:18AM to go too far down that road, having not done that in a long
11:01:21AM time. But I would want to look at differences, yeah.

11:01:26AM Q. And if the case were brought, for example, by the
11:01:29AM Department of Justice, there, too, you would consider the
11:01:33AM possibility of a market of all apps or of multiple categories
11:01:37AM of markets; correct?

11:01:40AM A. Yeah, I would, just as when the Department of Justice

11:01:43AM brought the Amex case, they considered a travel and
11:01:48AM entertainment market as a possibility, which the Court did not
11:01:51AM agree with.

11:01:51AM Q. Which the Court rejected.

11:01:53AM A. Right.

11:01:53AM Q. And landed instead on a broader market for all payment
11:01:58AM transactions, correct -- or payment card transactions?

11:02:03AM A. Payment cards excluding debit cards, yes.

11:02:07AM Q. If you had a plaintiff who made both game apps and
11:02:10AM non-game apps, that, too, might lead to a different ultimate
11:02:14AM outcome than where you have landed in this case; correct?

11:02:18AM A. Well, Epic does do both game apps and non-game apps, of
11:02:23AM course, but the question is predominantly game apps. So if it
11:02:27AM were a 50/50 split, for instance, you would look at both hard.

11:02:31AM Q. Sir, is that in your written testimony, that you look at
11:02:33AM the predominant product of the plaintiff?

11:02:38AM A. I think it's implicit if I didn't use the language.

11:02:44AM Q. And if Epic were suing in its capacity as a distributor of
11:02:48AM apps, as a store, well, then the right market would be
11:02:53AM transactions market for all apps, full stop; correct?

11:03:00AM A. You know, I might have said that. It's quite possible.
11:03:03AM I've thought about it. If I may give a complete answer of
11:03:06AM what I think, or wait for redirect?

11:03:08AM Q. Well, let's do it in stages.

11:03:09AM First of all, that was your testimony at your deposition;

11:03:12AM correct?

11:03:15AM A. Could have been, yes.

11:03:16AM Q. Okay. And since your deposition, you've thought about it

11:03:18AM and had the opportunity to discuss that with counsel; correct?

11:03:21AM A. And colleagues and to cogitate, yes.

11:03:23AM Q. Okay. And you testified also at your deposition that if

11:03:27AM we were talking about Epic suing in its capacity as a

11:03:30AM distributor of apps, the relevant market would be, quote, the

11:03:35AM market for being an app store; is that right?

11:03:39AM A. Right, a market in which Epic is now active.

11:03:43AM Q. Right.

11:03:44AM A. Yeah.

11:03:45AM Q. A market in which it is currently not permitted to be

11:03:47AM active; correct?

11:03:49AM A. It's an app store; it's just not permitted to distribute

11:03:52AM iOS apps.

11:03:53AM Q. Or to do so on an iOS device.

11:03:56AM A. Right. And in a sense, this is -- that exclusion is a

11:04:00AM special case of the fact that nobody can distribute iOS apps,

11:04:04AM so it doesn't really get you anyplace different, as I think

11:04:09AM about it.

11:04:10AM Q. Anyplace different from --

11:04:11AM A. If you can't do it, then neither can anybody else.

11:04:14AM Q. Right. And in any case, you would get to a land where it

11:04:17AM would be a market for being an app store or for being a

distributor of all apps.

That was your deposition testimony; correct?

A. I could have said all apps. I'm not sure that's obvious when Epic is predominantly a -- when the Epic Games Store is predominantly a distributor of iOS apps.

But in any case, this is sort of a -- sort of subsumed in the restriction that Epic complains of. It's not a new restriction. Epic can't do it; neither can anybody else.

Q. That's right.

And as a result, your testimony before and your testimony now is nobody else is able to distribute apps on an iOS device; correct?

A. That's my understanding, yes.

Q. And if Epic were suing in its capacity as a potential competitor in that activity, distributing apps on an iOS device, the relevant market would be the market for being an app store; correct?

A. I think --

Q. That was your testimony before.

A. Yeah, it probably was. And I think I got -- I'm happy to clarify, but I'm also happy --

Q. I think I will let you --

A. -- to let you go on and do it on redirect.

Q. I think I will let you do that one with Mr. Swanson.

A. Of course.

11:05:35AM Q. What you -- what you land on, ultimately, is a games
11:05:39AM transaction market; correct?

11:05:42AM A. Correct.

11:05:43AM Q. And that's because you believe that game transactions face
11:05:47AM increased substitution possibilities as compared to certain
11:05:51AM other types of app transactions; fair?

11:05:55AM A. Well, that's one reason. There are different sort of
11:05:59AM broad purposes. There are different specialist providers and
11:06:02AM so on. But -- it's one reason, but it's not the only reason.

11:06:06AM Q. And it's a market that includes all games; correct?

11:06:12AM A. Yes.

11:06:13AM Q. So -- so -- and you didn't see any basis for narrowing the
11:06:17AM market any further to some subcategory of game transactions;
11:06:23AM correct?

11:06:23AM A. I didn't see a well-defined subcategory of game
11:06:27AM transactions that -- that merited that treatment, just as the
11:06:33AM plaintiff's definition doesn't narrow the all app category at
11:06:36AM all.

11:06:37AM Q. Right. And so you testified that you saw no basis for any
11:06:44AM exclusion of a particular type of game category to narrow the
11:06:47AM market further; correct?

11:06:49AM A. That's what I said.

11:06:50AM Q. Okay. But you are aware that there are different types of
11:06:54AM game apps; correct?

11:06:56AM A. Of course.

11:06:56AM Q. Some of them are the graphics-heavy, intensive, immersive
11:07:01AM games like *Fortnite*, which we got to watch here in the
11:07:04AM courtroom a few times.

11:07:06AM A. I missed that. It must have been fun. But I'm aware of
11:07:09AM that app, yeah.

11:07:10AM Q. And some of them are simple kind of finger-swipe apps, and
11:07:15AM I think you said you played *Tetris*; correct?

11:07:18AM A. I did have a brief addiction, yes.

11:07:20AM Q. Have you ever played *Fortnite*?

11:07:22AM A. I have never played *Fortnite*, no.

11:07:24AM Q. And then there are word games and other types of games, as
11:07:26AM well; correct?

11:07:28AM A. Correct.

11:07:31AM Q. And there are different substitution possibilities for
11:07:33AM those different types of games; correct?

11:07:36AM A. Well, let me try to answer a sharply -- a more sharply
11:07:42AM posed question. There are different substitutability
11:07:46AM relationships. You can always substitute, but consumers may
11:07:50AM find some closer substitutes than others.

11:07:51AM Q. Well --

11:07:51AM A. I think that's what you meant.

11:07:53AM Q. Well, what I mean is -- I'm using the phrase that you used
11:07:56AM to describe Professor Lafontaine's analysis, which was
11:07:59AM "substitution possibilities"; right? Those were your words?

11:08:03AM A. That may well have been, yeah.

11:08:05AM Q. And a graphics-intensive, immersive game like *Fortnite*,
11:08:11AM which is available on game consoles and PCs, it has greater
11:08:16AM substitution possibilities than, you know, a *Candy Crush* or a
11:08:22AM *Words with Friends*; correct?

11:08:29AM A. Well, if you mean because it's available on more platforms
11:08:32AM than those -- I don't know what they're available on -- then,
11:08:34AM yes, there is more substitution possibility.

11:08:36AM Q. Okay. And having relied on substitution possibilities to
11:08:46AM divide the category of all apps into games, you chose not to
11:08:50AM go further and divide the game apps into categories using the
11:08:56AM same logic; fair?

11:08:58AM A. Well, I didn't just rely on that. As I mentioned, there
11:09:01AM are different developer communities and different monetization
11:09:06AM strategies. It's -- non-game apps are quite heterogeneous in
11:09:12AM that regard.

11:09:13AM Q. And within game apps, you actually didn't investigate the
11:09:16AM question of whether there are distinct producers or developers
11:09:20AM of games -- different types of games; right?

11:09:23AM A. I did not.

11:09:24AM Q. Right. So at your deposition, for example, you didn't
11:09:26AM know how many of the developers of the top 25 iOS games also
11:09:32AM made console games.

11:09:36AM A. I may well not have known that.

11:09:38AM Q. And you didn't know the proportion of developers who
11:09:41AM choose to develop games only for mobile platforms versus for

multiple platforms.

A. I didn't have that number. Professor Hitt, I believe, has that number, but I didn't have it on the top of my head.

Q. And those were not issues on which you focused in forming your opinion in this case either.

A. Well, I read his early report. I read his rebuttal report. I didn't remember the numbers.

Q. Okay. Did you, sir, consider the question of -- in forming your opinion, did you consider the question of the proportion of developers who made mobile games only versus who made games for multiple platforms?

A. I considered it. I also considered the fact that many developers multihomed, to use the other side of the phrase you dropped in the conversation, and so could switch between platforms and could change -- not effortlessly, but could change the menu or the set of platforms for which they produced. So it's possibilities, not just actual behavior, that matters.

Q. So, sir, I'd like to ask you to take a look at your deposition, please.

Hopefully, I will do better this time, Your Honor. And I'm turning to page 386. This is in Volume 2 of the deposition, Your Honor.

THE COURT: Lines?

MR. BORNSTEIN: Beginning at line 4 through line 9.

11:11:11AM **THE COURT:** Okay. You did better.

11:11:14AM **MR. BORNSTEIN:** Thank you, Your Honor.

11:11:17AM **THE COURT:** You can wait for him or you can just read
11:11:20AM it into the record.

11:11:21AM **MR. BORNSTEIN:** I will wait for Professor
11:11:23AM Schmalensee.

11:11:25AM **Q.** Do you have it?

11:11:25AM **A.** I have it. Which lines?

11:11:27AM **Q.** I'm on page 386 --

11:11:28AM **A.** Yeah.

11:11:28AM **Q.** -- beginning at line 4.

11:11:31AM And I asked you the question:

11:11:33AM "Q. Did you consider that question in forming your opinion
11:11:36AM about the proper market definition in this matter?"

11:11:38AM Do you see that?

11:11:39AM **A.** I see that. I'm not sure what that question was. I'd
11:11:42AM have to go back --

11:11:45AM **Q.** I was just going to clarify that. So let's go back up --

11:11:48AM **A.** Yeah.

11:11:48AM **Q.** -- to page 385, line 13, where I asked you the question:

11:11:51AM "Q. Do you have any understanding of the proportion of
11:11:54AM developers who choose to develop games for both mobile
11:11:57AM platforms and consoles versus those who choose to develop
11:12:01AM games for only one or the other?"

11:12:02AM And you answered:

11:12:03AM "A. As I sit here, I don't have those figures off the top
11:12:07AM of my head."

11:12:07AM Correct?

11:12:08AM A. Yes.

11:12:09AM Q. And that's pretty consistent with what you said just now.

11:12:12AM A. That's consistent with my memory, yes. Excuse me.

11:12:15AM Q. And then I asked you at the lines that I identified
11:12:17AM before, page 386, line 4:

11:12:19AM "Q. Did you consider that question in forming your
11:12:22AM opinion about the proper market definition in this matter?"

11:12:24AM And after your counsel objected, you said:

11:12:26AM "A. I didn't consider that specific question in forming
11:12:29AM my opinion."

11:12:31AM Is that the testimony that you gave under oath at
11:12:34AM deposition, sir?

11:12:35AM A. It is, indeed.

11:12:36AM Q. Okay. You have talked a few times and I've asked you
11:12:45AM questions a couple of times about the Amex case; right?

11:12:49AM A. Indeed.

11:12:50AM Q. A chestnut that you can look back on like Microsoft
11:12:54AM someday, perhaps.

11:12:56AM A. There are differences, but never mind.

11:13:00AM Q. And you believe that the App Store here is like the
11:13:06AM American Express network, in that it neither buys nor sells
11:13:12AM any content, but it facilitates transactions involving a wide

11:13:18AM range of products; is that fair?

11:13:20AM A. I may have even used that language, yes.

11:13:23AM Q. The service that the App Store sells to developers and to
11:13:27AM consumers is, to use a word in one of your books, matchmaking;
11:13:32AM correct?

11:13:34AM A. Great word. Yes.

11:13:35AM Q. It brings together developers and consumers and it
11:13:38AM facilitates transactions between them; right?

11:13:41AM A. Correct.

11:13:42AM Q. And that -- that transaction service that the App Store
11:13:44AM provides has nothing whatsoever to do with the content that
11:13:51AM the developer then provides to the user; is that right?

11:13:56AM A. Well, the substitutability among transactions does have to
11:14:00AM do with the content.

11:14:01AM Q. That wasn't my question.

11:14:03AM A. Oh, I'm sorry.

11:14:04AM Q. The question was whether the transaction service that the
11:14:06AM App Store provides to the developers, whether that has
11:14:10AM anything to do with the content of the transaction between the
11:14:15AM developer and the consumer.

11:14:17AM And if that was too convoluted, I can make that more
11:14:20AM concrete.

11:14:22AM A. Oh, I think I know what you mean. And I would say yes
11:14:24AM except for the fact that the nature of the content may affect
11:14:28AM whether a commission is owed or what level of commission. But

11:14:34AM that apart, no.

11:14:35AM Q. Fair enough.

11:14:36AM But the transaction services that are provided by the App
11:14:38AM Store are the same services whether the developer sells games
11:14:44AM or music or coffee or crocheting materials, to take your
11:14:50AM example; correct?

11:14:51AM A. Well, crocheting app. But for the issue of a commission
11:14:56AM and so forth, that's correct.

11:14:58AM Q. So just like when Amex facilitates payments between
11:15:03AM merchants and customers, there, the credit card service is the
11:15:08AM same no matter what the merchant sells; it's a restaurant,
11:15:11AM it's a hardware store, it's a clothing boutique; right?

11:15:15AM A. It is the same. The substitution implications may differ,
11:15:18AM but the transaction service is the same.

11:15:20AM Q. And that is exactly the situation we find ourselves in
11:15:24AM with the App Store as well, with the exception you noted that
11:15:27AM sometimes a commission is due and sometimes it's not; right?

11:15:32AM A. And with the fact that substitution possibilities among
11:15:35AM transactions and transaction types may differ here, as there.

11:15:39AM Q. As there.

11:15:39AM And as you noted, the court rejected a narrower market in
11:15:44AM the Amex case; correct?

11:15:46AM A. It did.

11:15:54AM Q. We've talked about Steam, the game platform available on
11:15:59AM PCs.

11:15:59AM You remember that?

11:16:01AM **A.** PCs and Macs and I think Linux.

11:16:05AM **Q.** And there was some talk about Steam this morning, as well,
11:16:07AM with your predecessor on the stand, so we are having a steamy
11:16:11AM day.

11:16:13AM **THE COURT:** And I thought my jokes were bad.

11:16:16AM **MR. BORNSTEIN:** You get to laugh because, first, your
11:16:19AM joke was funny, and, second, you've got the robe, Your Honor.

11:16:22AM **THE COURT:** Exactly. I said that before. I almost
11:16:24AM talked about the banana today, but decided...

11:16:29AM **MR. BORNSTEIN:** I was thinking about the banana
11:16:31AM today, too. I will keep it out of the exam now.

11:16:34AM **THE WITNESS:** I wish I had seen that. But anyway...

11:16:36AM **THE COURT:** You can see it with and without the
11:16:37AM tuxedo.

11:16:39AM **THE WITNESS:** Yeah, I know. I heard that.

11:16:41AM **MR. BORNSTEIN:** Yeah. Either way, it's PG or G.

11:16:44AM **THE COURT:** I'd say G.

11:16:45AM **BY MR. BORNSTEIN:**

11:16:45AM **Q.** So Steam, Professor, it charged a 30 percent commission
11:16:49AM for quite a long time; correct?

11:16:52AM **A.** That's my understanding, yes.

11:16:53AM **Q.** And, actually, Apple's counsel gave Steam some credit in
11:16:57AM her opening statement for setting the 30 percent commission
11:17:00AM rate about five years before the App Store opened.

11:17:03AM Did you remember that from the statement?

11:17:05AM A. I remember that. I'm not entirely sure that was right,

11:17:09AM but I remember that. I think that somebody else may have

11:17:11AM beaten them to it. But in any case, they were early.

11:17:15AM Q. And Steam was charging 30 percent for, we'll call it,

11:17:17AM roughly 15 years; correct?

11:17:20AM A. Sounds right.

11:17:21AM Q. And then the Epic Games Store came along and started to

11:17:23AM compete with Steam; correct?

11:17:25AM A. Correct.

11:17:26AM Q. And Steam reacted, as firms often do, to competition by

11:17:33AM lowering its commission; correct?

11:17:36AM A. Well, you have the -- you have the temporal sequence

11:17:40AM right. I don't know what was in the head of the people at

11:17:43AM Steam, but looked at from the outside, that's what it looked

11:17:45AM like.

11:17:46AM Q. And, in fact, their change in the commission rate happened

11:17:50AM within weeks or a few months of the entry of the Epic Games

11:17:55AM Store; correct?

11:17:56AM A. It is certainly plausible that the entry was causal.

11:17:59AM Q. Causal to the change in commission rate.

11:18:02AM A. Yes. That's what I meant. Sorry.

11:18:05AM Q. But when the Epic Games Store launched and Steam lowered

11:18:10AM its price, you're not aware of any change to the commission

11:18:14AM rates on any of the consoles; correct?

A. I'm unaware of any change. It's my understanding that the consoles are more prone than, say, the App Store to negotiate special deals with individual suppliers, so there may have been a change that's not visible. But the headline rates didn't change.

Q. And the App Store didn't change its pricing when the Epic Games Store entered and Steam reacted by lowering price; correct?

A. Correct.

Q. And Google Play didn't change its pricing at that time either; correct?

A. Correct.

Q. And, in fact, you're unaware of the App Store ever changing its pricing in response to changes in the pricing of gaming transaction platforms; correct?

A. I am unaware of any such change.

Q. Okay. And, in fact, you've never seen any evidence of any cross-platform price changes as a result -- in the gaming transactions market that you've defined; correct?

A. No, unless you want to count the Steam/Epic Games Store, which is -- that's in the store business, but it's -- yeah.

Q. But that's not cross-platform. We're talking in both instances about online marketplaces that are available on PCs and Macs.

A. That's correct, yeah.

11:19:41AM

Q. And --

11:19:41AM

A. Oh, I see what you mean. No. The correct answer is no.

11:19:44AM

Q. All right. And just so the record is clear, because it seems I asked a potentially unclear question, you're not aware of any evidence of platforms responding to pricing or other term changes made by gaming transaction platforms that are used on other devices; correct?

11:19:46AM

11:19:53AM

11:19:58AM

11:20:03AM

A. I'm unaware of any such reaction.

11:20:05AM

11:20:08AM

Q. Okay. Now, you disputed this morning the notion that there is a market for smartphone operating systems; correct?

11:20:12AM

11:20:18AM

A. Correct.

11:20:20AM

Q. And, in fact, in your -- your testimony, you called Dr. Evans' discussion of the smartphone operating systems an elaborate attempt to distract; correct?

11:20:24AM

11:20:29AM

A. I may have gotten carried away, but I did say that.

11:20:31AM

11:20:34AM

Q. And your testimony is that there is a market, perhaps, that consists of bundles of hardware devices and operating systems together; is that fair?

11:20:39AM

11:20:45AM

A. That's what we buy and sell every day, yeah.

11:20:47AM

11:20:51AM

Q. And you have previously acknowledged, however, that there can be a market for operating systems themselves; correct?

11:20:57AM

11:21:03AM

A. I haven't in the context of litigation. I certainly have speaking as shorthand probably in Microsoft, probably in Invisible Engines, certainly the same way one talks about a Chevy engine competing with a Ford engine. But software

11:21:08AM

11:21:13AM

11:21:17AM

11:21:21AM doesn't compete; organizations compete.

11:21:23AM Q. So this is another example of your being careless or
11:21:26AM speaking in shorthand? That's right?

11:21:28AM A. Well, I assume you have examples where I talked about
11:21:31AM operating systems competing, and that would be exactly what it
11:21:34AM was. We probably said that in Invisible Engines.

11:21:38AM Q. And you probably said that a few other places, too; isn't
11:21:41AM that right?

11:21:42AM A. I may well have, yeah.

11:21:43AM Q. So --

11:21:43AM A. It's a natural shorthand.

11:21:45AM Q. And there are, in fact, according to Professor Lafontaine,
11:21:51AM natural intuitive groupings that are used in defining a
11:21:55AM market, too.

11:21:56AM A. That's a rather different issue. It has to do with -- not
11:22:00AM with terminology but with natural aggregates. But, yes.

11:22:04AM Q. Okay. And you did refer to the Microsoft case, and in the
11:22:08AM Microsoft case, one of the issues you analyzed was whether or
11:22:11AM not the operating system from Windows was being priced at
11:22:16AM monopoly levels; correct?

11:22:19AM A. Boy, that's been a long time ago, but, yes, we did.

11:22:22AM Q. Okay.

11:22:23AM A. Dr. Evans and I wrote a number of papers on that subject.

11:22:26AM Q. Right. And after the case, you wrote a number of papers
11:22:28AM in which you referred to an operating system market; correct?

11:22:32AM A. Might have done.

11:22:35AM Q. You said, by the way --

11:22:37AM A. I will say -- may I clarify?

11:22:39AM Q. Sure.

11:22:40AM A. Windows was sold. There was a price. So there was a

11:22:44AM market. It was an ordinary market. The question is what did

11:22:48AM it compete with. But if it's a monopoly, then you can look at

11:22:52AM its price and say is that a monopoly price? That is what we

11:22:55AM did.

11:22:56AM Q. Right. And it competed with, for example, the Mac

11:23:00AM computer together with the macOS; correct?

11:23:02AM A. Yeah.

11:23:03AM Q. And you see those two things as being in competition, a

11:23:06AM bundled device and OS competing with an operating system all

11:23:10AM by itself; correct?

11:23:12AM A. In those -- of course. In those papers -- because Windows

11:23:15AM is a three-sided platform and it's a little more complicated

11:23:19AM business -- but in those papers, we didn't -- maybe we did,

11:23:22AM but I don't think we, in the analysis, looked at a competitor.

11:23:26AM We looked at is it a monopoly price, given what we know about

11:23:31AM the demand it faces.

11:23:33AM Q. Well, maybe you didn't use the word "competitor," but did

11:23:36AM you write that "few would dispute that Microsoft has a

11:23:39AM short-run monopoly over PC software platforms even though

11:23:44AM consumers could opt for Apple computers and the macOS"?

11:23:51AM A. That certainly sounds like something we would have
11:23:53AM written, Dr. Evans and I.

11:23:55AM Q. And you distinguished the Windows operating system just
11:23:58AM now as not having been free; correct?

11:24:03AM A. It was licensed for a price, yes.

11:24:05AM Q. And you've testified multiple times that Google gives away
11:24:08AM the Android system for free; correct?

11:24:10AM A. That's my understanding, yes.

11:24:12AM Q. But it only gives it away for free from a monetary
11:24:15AM perspective; correct?

11:24:20AM A. Well, if you're saying that Google operates a platform
11:24:24AM that is profitable and part of that platform is to make the
11:24:28AM operating system available at a zero price, I agree with that.

11:24:32AM Q. Well, it's a zero price in terms of a cash outlay, but
11:24:36AM there are a number of obligations that OEMs take on when they
11:24:42AM agree to license the Android operating system; isn't that
11:24:47AM correct?

11:24:48AM A. There are.

11:24:48AM Q. For example, they are obligated to give preferential
11:24:52AM treatment to certain Google services, to Google Play, to
11:24:56AM certain Google apps, and those are all burdens that they take
11:25:00AM on as part of the license agreement; correct?

11:25:02AM A. But they don't have out-of-pocket costs. There are
11:25:04AM burdens.

11:25:05AM Q. And those burdens are a non-monetary price that are paid

11:25:12AM by OEMs in order to get access to the Android system, and in
11:25:17AM that sense, Android is not free, is it?

11:25:21AM A. Well, unless I -- unless I misunderstand the nature of
11:25:25AM those burdens, they are hardly substantial, and they're not
11:25:27AM how Google monetizes that system in any case. I'm not sure I
11:25:33AM understand how Google monetizes that system entirely, but
11:25:36AM that's not it.

11:25:36AM Q. But that isn't the issue in terms of how you decide
11:25:39AM whether there is a market. There is a price that's being paid
11:25:41AM by those OEMs in order to get Android. It just happens not to
11:25:46AM be measured in dollars and cents; fair?

11:25:51AM A. That's a novel way to look at it, but I think it's
11:25:53AM probably correct.

11:25:56AM Q. You mentioned earlier today that you've been listening
11:25:59AM attentively to the testimony.

11:26:01AM A. I wouldn't go so far as to say "attentively." Some parts
11:26:05AM are more interesting than others.

11:26:07AM Q. Well, I hope you found the cross-examination of
11:26:09AM Mr. Sweeney interesting.

11:26:11AM A. I did.

11:26:11AM Q. And you may not have been able to see this or be aware of
11:26:16AM this because you were not in the courtroom, but did you know
11:26:19AM that Apple's counsel used a demonstrative with Mr. Sweeney
11:26:25AM during his cross-examination?

11:26:27AM A. I didn't see it. I didn't know what they used. If they

11:26:30AM used it, I'm unaware of it.

11:26:32AM Q. All right. Well, I'm going to pull up on the screen, if
11:26:35AM Mr. Rudd can help me out with slide 2, a version of the
11:26:40AM demonstrative, which I readily concede we put together in an
11:26:44AM effort to faithfully represent what was used with Mr. Sweeney.
11:26:49AM And I readily acknowledge some of the graphics are going to be
11:26:52AM different, but I hope I got the substance of that right.

11:26:55AM Do you have the demonstrative on the screen?

11:26:59AM A. I do.

11:26:59AM Q. Okay. And Apple's counsel went through and had this sort
11:27:03AM of filled out with Mr. Sweeney's help, and what it shows, for
11:27:08AM the record, is five rows, "Xbox," "Sony," "Nintendo,"
11:27:15AM "iPhone," and "Android."

11:27:17AM Do you see that?

11:27:18AM A. I do.

11:27:19AM Q. And then for each one of those, it identifies the headline
11:27:22AM commission rate -- that's a phrase you used earlier today;
11:27:25AM correct?

11:27:26AM A. Yes.

11:27:26AM Q. And it identifies whether or not there is a complete
11:27:29AM prohibition on third-party distribution.

11:27:31AM Do you see that?

11:27:32AM A. I see it.

11:27:33AM Q. And then it indicates whether or not there is a
11:27:35AM requirement to use the platform owner's in-app payment

11:27:39AM solution.

11:27:39AM Do you see that?

11:27:40AM **A.** I do.

11:27:41AM **MR. BORNSTEIN:** And it occurs to me, Your Honor, we
11:27:42AM should give this a PDX number, which we can do at a break, if
11:27:46AM that's acceptable.

11:27:48AM **THE COURT:** That's fine. I don't know what the next
11:27:50AM in order is.

11:27:51AM **MR. BORNSTEIN:** We'll figure that out.

11:27:53AM **THE COURT:** All right. Proceed.

11:27:53AM **MR. BORNSTEIN:** Thank you.

11:27:56AM **Q.** Now, there are two very important platforms that are
11:27:59AM missing from this demonstrative so far.

11:28:02AM Do you agree with me on that?

11:28:04AM **MR. DOREN:** Your Honor, I will just object to the
11:28:06AM assertion that this accurately reflects what was used with
11:28:10AM Mr. Sweeney. It is a different --

11:28:12AM **THE COURT:** So we can't hear you.

11:28:14AM **THE CLERK:** Hang on. Let me get the mic. Okay.

11:28:20AM **THE COURT:** Go ahead.

11:28:21AM **MR. DOREN:** Your Honor, I apologize for inserting
11:28:23AM myself into this examination, but Mr. Swanson wasn't here for
11:28:27AM Mr. Sweeney's cross-examination.

11:28:28AM And I'll just -- I would like to assert an objection to
11:28:31AM the assertion that this faithfully represents what was used

11:28:34AM with Mr. Sweeney. There are a number of differences, and I
11:28:38AM just want that clear for the record.

11:28:40AM **THE COURT:** Okay. Well, I don't know them off the
11:28:42AM top of my head. You can give that to -- you can give a copy
11:28:45AM to Mr. Swanson, and if it's important, he will address it.

11:28:48AM **MR. DOREN:** Thank you, Your Honor.

11:28:49AM **THE COURT:** Proceed.

11:28:50AM **MR. BORNSTEIN:** Thank you.

11:28:52AM **Q.** So there are two platforms that are missing from the
11:28:57AM slide, at least as I put it together. I don't want to impugn
11:29:01AM Mr. Doren and his team.

11:29:02AM Is that fair?

11:29:03AM **A.** Yeah. Mac and Windows are missing.

11:29:06AM **Q.** Okay. Well, maybe Mr. Rudd can help us. There we go.

11:29:09AM Now, on Mac and Windows, there's direct distribution
11:29:15AM available, correct, of software?

11:29:18AM **A.** Yes.

11:29:19AM **Q.** There are also stores that are available, and we've talked
11:29:22AM about some today; correct?

11:29:23AM **A.** Yes.

11:29:24AM **Q.** And so fair to say that the commission rate for
11:29:27AM distribution on Windows and Mac varies depending on how the
11:29:30AM developer chooses to get its software out to users.

11:29:37AM **A.** I don't think the commission -- the headline commission
11:29:40AM rate on the store varies. Maybe I don't understand the stores

11:29:44AM well enough, but the stores have a commission rate. But the
11:29:47AM developer can use third party or it can use other stores.
11:29:50AM Q. Sure. So developers have choices, and as a result, the
11:29:55AM available range of commission rates to a developer will vary,
11:29:58AM depending on whether it wants to use an affiliated store, a
11:30:02AM third-party store, or distribute directly.

11:30:06AM A. It will presumably vary.

11:30:08AM Q. Okay.

11:30:09AM A. Though I would say that -- that direct distribution has
11:30:13AM its own costs so that labeling it headline commission rate
11:30:18AM isn't necessarily the right way to go, but there are varying
11:30:23AM costs depending on the developer's choice.

11:30:26AM Q. That's a fair clarification that I'll take, but since
11:30:29AM Mr. Rudd can't change the slide on the fly, let's populate it
11:30:33AM with the words "Varies by Store."

11:30:35AM How about that?

11:30:36AM A. Well, that's partly true, but varies by choice of
11:30:39AM distribution, yeah.

11:30:39AM Q. And I have to probably --

11:30:39AM A. And it does vary by store, as well.

11:30:42AM Q. I think yours is a better description, which I will adopt
11:30:45AM and the record will reflect.

11:30:46AM So let's go to the next one about the complete prohibition
11:30:49AM on third-party distribution. These, I hope, are easier,
11:30:52AM because there is no such prohibition on either Windows or Mac;

11:30:56AM correct?

11:30:57AM A. Correct.

11:30:57AM Q. All right. Let's put those in there.

11:30:58AM And then whether there is a requirement to use the
11:31:01AM platform owner's in-app payment solution, on neither platform
11:31:07AM is there such a requirement in all times, again, because the
11:31:11AM developer can choose how to distribute its app; correct?

11:31:15AM A. Well, if you use the Windows Store or the Mac Store, there
11:31:18AM is a complete prohibition. If you do something else, then
11:31:21AM there must -- there is something else.

11:31:24AM Q. Correct.

11:31:25AM A. But for those stores, there is a prohibition.

11:31:27AM Q. That, too, is a fair clarification.

11:31:29AM But a developer does have a choice to take another route
11:31:32AM and distribute directly; correct?

11:31:34AM A. Yes, or to use some store that -- as far as I know, the
11:31:38AM main stores do have a requirement to use in-app, but direct
11:31:42AM distribution obviously lets you do whatever you want.

11:31:44AM Q. And so, for example, on the Mac, 78 percent of apps are
11:31:49AM distributed directly; is that right?

11:31:51AM A. That could be. It's not a number I have in my head.

11:31:54AM Q. All right. Well, let's go ahead and populate that. I
11:31:56AM predicted we would have gotten to know, but you've clarified
11:32:01AM what -- what the facts are and I accept your clarifications.

11:32:04AM A. Okay.

11:32:05AM Q. Now, we filled in the bottom of the demonstrative, but I
11:32:08AM would like to fill in the right side, because there are some
11:32:10AM other categories that may be relevant to thinking about this.
11:32:14AM So "Type of OS" is the first column I'd like to add here.

11:32:18AM Am I right that you think about computer operating systems
11:32:27AM as a foundational platform that provide a platform for app
11:32:32AM developers and users to make all kinds of software?

11:32:36AM A. That may even be my language, but, yes.

11:32:39AM Q. Okay. And so you would be comfortable calling Windows and
11:32:43AM Mac, for example, general-purpose operating systems?

11:32:46AM A. Yes.

11:32:46AM Q. And does that apply for iPhone and Android, too, given the
11:32:50AM range of apps that are available?

11:32:52AM A. Given the range of apps, yes.

11:32:54AM Q. Okay. But for Xbox and Sony and PlayStation and the
11:32:57AM Nintendo Switch, those are different; right?

11:33:01AM A. Well, I don't know as a technical matter, but given the
11:33:06AM hardware/software bundles that are sold, they are not as fully
11:33:11AM functional as the bundles sold with the others.

11:33:14AM It may be that -- you can do a variety of things on Xbox
11:33:20AM beyond playing games, for instance. I don't know how much
11:33:22AM that has to do with the hardware or how much that has to do
11:33:25AM with the software.

11:33:26AM Q. But they're not designed and marketed primarily for that
11:33:29AM purpose, correct, for anything other than games?

A. They are designed and marketed primarily for games, that's correct.

Q. And they're not what you would call foundational platforms either; correct?

A. I'd have to think about what that means. I'm sure I used the language, but I used the language in connection with the operating systems at the bottom.

It's not -- they're not foundational for a wide range of functions, so they're not foundational in that sense. They're foundational for a wide range of games and some of them for a range of functions. So not a technical term.

Q. Fair enough.

As you predicted, those were your words. I was assuming that you would have a clearer definition in mind, but I won't push you on it.

I will ask Mr. Rudd to populate the slide and see if we can just be in general agreement here that the Xbox, the Sony, PlayStation, and the Nintendo Switch are more special or niche operating systems, and the remainders, the iPhone, the Android, the Windows, and the Mac, are general-purpose or foundational operating systems.

Would you agree with those characterizations?

A. By and large, although I don't know how -- the extent to which their special nature reflects the operating system or reflects the hardware or reflects the -- some -- some mixture.

11:34:54AM I just haven't looked. As they are marketed, they're more
11:34:57AM specialized.

11:34:58AM Q. That's a fair clarification, too. Thank you, sir.

11:35:01AM So let's pop in the last column there -- that's the only
11:35:04AM one we have any more room for -- which I have titled "Business
11:35:07AM Model."

11:35:07AM And in the computer operating system business, Microsoft
11:35:15AM provides developer tools for a nominal charge and receives
11:35:21AM almost all of its income for Windows from licensing, from --
11:35:27AM from OEMs, from computer makers; correct?

11:35:31AM A. Correct.

11:35:31AM Q. That's why you called it a three-sided platform?

11:35:33AM A. That's precisely right.

11:35:35AM Q. Mac and iPhone, the two Apple systems here, they get --
11:35:39AM they also provide tools for a nominal charge to developers,
11:35:43AM and they get the bulk of their revenues from the sale of
11:35:47AM hardware; correct?

11:35:49AM A. Correct.

11:35:51AM Q. And Google, you've already said no one really knows how
11:35:54AM they make their money --

11:35:55AM A. Right.

11:35:56AM Q. -- but it seems to be through advertising and information
11:36:01AM gathering that comes from users, ultimately; correct?

11:36:04AM A. It seems to be the general industry understanding, yes.

11:36:07AM Q. Okay. But the video game consoles, you testified this

11:36:12AM morning the general understanding is that they sell their
11:36:16AM hardware at a loss; correct?

11:36:19AM **A.** Or at least that's not where they make all their money. I
11:36:22AM did see that Microsoft document that came in which suggests
11:36:25AM that at least one of them sells at a price that covers
11:36:31AM incremental cost. But that's not where they make their money.

11:36:35AM **Q.** They make their money from the developers; correct?

11:36:37AM **A.** Correct.

11:36:37AM **Q.** And that is, in fact, in your -- in your opinion, the
11:36:41AM universal view as to how the video game consoles make their
11:36:46AM money and run their business; correct?

11:36:48AM **A.** Despite the absence of audited financial statements, that
11:36:51AM has been the general view for a long time.

11:36:54AM **Q.** And so let's populate that last column here, where the
11:36:59AM video consoles have subsidized hardware and the
11:37:04AM general-purpose operating systems on the bottom profit from
11:37:08AM the users, from the hardware or, in Google's case, from the
11:37:12AM advertising or from an OEM; correct?

11:37:18AM **A.** Yeah, for the bottom two and the top three, that seems
11:37:22AM right.

11:37:22AM Of course, as you will point out, the iPhone gets profit
11:37:26AM both from the apps, both from developers, and from hardware.

11:37:31AM **Q.** Indeed. So let's just divide up these things. We've got
11:37:38AM the general-purpose operating systems here on the bottom, the
11:37:42AM bottom four: The iPhone, the Android, the Windows, and the

Mac.

And your view, sir, is that the video game consoles on top have a radically different business model; is that fair?

A. I used that language, yes.

Q. Well, why don't we finish up the slide. Radically different.

MR. BORNSTEIN: And I don't know, Your Honor, if now -- oh, we are not even close. I thought we were -- oh, we're an hour off. But I'm happy to keep going.

THE WITNESS: You must be hungry.

MR. BORNSTEIN: I am a little bit.

We can take that down.

Q. Now, sir, the -- you referred earlier to whether or not there has been actual price changes on the App Store as an opportunity where one might observe substitution going on.

Do you recall that?

A. I do.

Q. Right. And your testimony to the Court has been that Apple has only reduced elements of its price structure over time; is that correct?

A. That's correct.

Q. And it's true Apple started with a 30 percent commission back when the App Store was launched; correct?

A. Yep.

Q. And that commission, when it applies, has not yet gone

11:38:52AM higher than 30 percent; correct?

11:38:54AM A. Nor has it gone lower as a headline commission.

11:38:57AM Q. But the range of transactions to which that commission

11:39:01AM applies, that has changed; correct?

11:39:05AM A. Well, new functionality has been added, like

11:39:11AM subscriptions, so yes.

11:39:13AM Q. Well, let's dig in on that, sir.

11:39:15AM When the App Store was launched in 2008, it was possible

11:39:19AM for developers to sell content to users from the app, in-app

11:39:28AM purchasing; correct?

11:39:30AM A. I'm not sure that was true, but if it was, okay.

11:39:34AM Q. All right. You don't know one way or the other?

11:39:37AM A. Well, my understanding is that if it was true, it was

11:39:39AM subject to the commission. But whether they, in fact, did and

11:39:43AM didn't pay the commission, I don't know.

11:39:45AM Q. Well, the IAP mechanism, Apple's in-app purchase

11:39:51AM mechanism, did not come into being until a year after the App

11:39:55AM Store was launched; correct?

11:39:57AM A. That's certainly correct.

11:39:59AM Q. But prior to the launch of the IAP mechanism of Apple's,

11:40:06AM it was still possible for people to do in-app purchases,

11:40:08AM wasn't it?

11:40:10AM A. I don't know that. It might have been. If it was, I

11:40:12AM didn't know -- I don't know.

11:40:14AM Q. All right. And that's fair.

11:40:14AM Now, I'll just ask you to assume for a moment that I have
11:40:17AM that right.

11:40:17AM A. Yep.

11:40:17AM Q. In that instance, when Apple introduced IAP, it
11:40:23AM effectively imposed a price increase on those transactions.

11:40:27AM A. On those -- on those people who had been doing in-app
11:40:30AM transactions without paying anything.

11:40:32AM Q. Yes.

11:40:32AM A. If there were such people, they paid a higher price.

11:40:35AM Q. And you mentioned subscriptions.

11:40:37AM There were people who were offering subscriptions through
11:40:40AM their apps prior to the time that Apple imposed the IAP
11:40:45AM commission requirement on the subscription sales; correct?

11:40:49AM A. My understanding was that the subscription -- the
11:40:53AM subscription change was a new functionality. Again, whether
11:40:58AM they were offering subscriptions before Apple enabled
11:41:04AM subscriptions as such, perhaps. I'm unaware of any examples,
11:41:07AM but if there were such examples, as I said in my deposition,
11:41:10AM then those folks would have seen a price increase. I'm
11:41:14AM unaware that there were such. Apple contends the subscription
11:41:17AM functionality was a new feature for which it charged.

11:41:20AM Q. Right. It was a new feature of having subscriptions run
11:41:24AM through the App Store and run through IAP, but certainly you
11:41:27AM realize people were able to have subscriptions available like
11:41:30AM Netflix and Spotify, to take two examples.

A. Well, as they do now, without needing to run them through the App Store.

Q. Right. But before 2011, when Apple actually imposed this requirement, they were able to run them from their iOS devices as well; correct?

A. I'm unaware of that. My understanding is that that functionality really wasn't there. Those would have been in-app purchases. They would have -- they would have been subject to the commission rate.

The subscription functionality, well, required Apple to track subscriptions, which is different from a "and now you buy it and now you buy it and now you buy it." So I'm unaware that they were able actually to offer subscriptions before this functionality.

Q. And you mean subscriptions through Apple's infrastructure; correct?

A. That's what I meant, yes.

Q. Okay. They were able to offer subscriptions, however; correct?

A. Well, I don't know how. I mean, you can offer subscriptions in the sense that people can subscribe on a website or whatever, but whether they were able to offer subscriptions in the way we think of a subscription, my understanding was that you couldn't quite do that.

If you could and you didn't pay a commission -- you know,

Apple witnesses will have to clarify all of this -- if you could do it and didn't pay a commission and then Apple said, "If you do it, you pay a commission," by definition, that's a price increase. My understanding is the Apple people will say that's wrong, but they're not here.

Q. All right. And I appreciate that, sir. I don't mean to debate the facts with you. You're here to talk about the economics, and I will try to keep my questions focused that way, which is what I have been trying to do.

You talked a little bit about your analysis of Dr. Evans' conclusion that Apple could profitably raise price on its commission rate.

Do you recall that?

A. I do.

Q. You currently don't have any view as to whether the price that Apple is charging right now is its profit-maximizing price.

Is that accurate?

A. Sure. I have not done that analysis.

Q. All right. As a matter of economic principle, is it true that determining the profit-maximizing price requires taking into account all of the facts and circumstances that face the business?

A. That sounds like a deposition question to which the correct answer is yes.

11:44:00AM Q. I hope it was an economic question, too.

11:44:03AM A. Yes, sir.

11:44:03AM Q. Keep to my -- keep to my promise.

11:44:05AM Now, one of the facts and circumstances that a business
11:44:08AM would rationally take into account in setting a
11:44:13AM profit-maximizing price would be the possibility of regulatory
11:44:16AM action; correct?

11:44:17AM A. If that's a real possibility, that's something that they
11:44:20AM would take into account.

11:44:21AM Q. And it would be the possibility of legislative action;
11:44:24AM correct?

11:44:25AM A. If it's a real possibility, you might take it into account
11:44:28AM if your pricing would affect that possibility.

11:44:31AM Q. All right. Well, let's take it from the hypothetical to
11:44:34AM the actual, albeit historical. Back to Microsoft.

11:44:41AM You were an expert witness for Microsoft during its
11:44:45AM antitrust battles; correct?

11:44:47AM A. I was.

11:44:47AM Q. And Microsoft went through extensive antitrust scrutiny in
11:44:51AM the 1990s; correct?

11:44:52AM A. Oh, yes.

11:44:53AM Q. And it was widely recognized that the government's focus
11:44:57AM on Microsoft's conduct led Microsoft to reign in its behavior;
11:45:02AM correct?

11:45:12AM A. Recognized -- I must say some of Microsoft's behavior

11:45:15AM didn't suggest a great recognition of that issue, but it was
11:45:19AM certainly discussed.

11:45:20AM Q. All right. And you know that Apple has been under
11:45:23AM antitrust scrutiny here in the United States and around the
11:45:26AM world on App Store-related issues for a number of years;
11:45:30AM correct?

11:45:32AM A. Yeah. I'm not sure how many years, but it's certainly a
11:45:35AM number.

11:45:36AM Q. Well, we heard some testimony this week that Dr. Evans had
11:45:41AM been retained to provide some economic consulting for a client
11:45:46AM on this issue in 2016; right?

11:45:49AM A. We did hear that, yes.

11:45:51AM Q. And you're aware that last year in the summer, Mr. Cook,
11:45:57AM Apple's CEO, testified before Congress; correct?

11:46:00AM A. I think that's right, yeah.

11:46:02AM Q. It was on TV, lots of news about it?

11:46:04AM A. Well, I didn't watch the TV coverage, but that sounds
11:46:08AM right, yeah.

11:46:09AM Q. And Mr. Cook, are you aware, testified that Apple had
11:46:12AM never increased commissions in the store since the first day
11:46:16AM it operated in 2008.

11:46:19AM A. That sounds like what he said.

11:46:22AM Q. And if Apple had actually gone ahead and raised prices,
11:46:26AM Mr. Cook would have lost that talking point, wouldn't he?

11:46:30AM A. He would have. And as I said, I think Apple fact

11:46:34AM witnesses will dispute the notion of a price increase as
11:46:38AM opposed to a new function for which a price was charged.
11:46:40AM Q. Okay. And if Apple had gone ahead and raised its headline
11:46:43AM rate, its 30 percent, Mr. Cook wouldn't have been able to say
11:46:45AM that to Congress and Apple wouldn't be able to give the
11:46:48AM testimony that it has sponsored in this Court, that it has
11:46:51AM never raised price; correct?
11:46:53AM A. That's certainly correct.
11:46:54AM Q. Now, your report draws a distinction -- you talked about
11:46:58AM it this morning -- between economic profitability and
11:47:01AM accounting profitability; correct?
11:47:03AM A. Correct.
11:47:04AM Q. To be clear, there is no particular bias in which
11:47:10AM direction the difference between those two things goes; right?
11:47:13AM Accounting profits can be higher or lower than economic
11:47:16AM profitability; fair?
11:47:18AM A. That's right. It depends on a lot of things.
11:47:20AM Q. Right. Now, in your expert rebuttal report, you made the
11:47:25AM statement that if most of Apple's R&D is devoted to the App
11:47:31AM Store, then a revenue-based allocation of joint costs would
11:47:38AM underestimate the expenses attributable to the App Store; is
11:47:41AM that correct?
11:47:46AM A. I believe I said it, but could you read it to me again?
11:47:49AM Q. Sure. What you said -- I'll get the exact language,
11:47:54AM rather than a paraphrase -- was that "If most of Apple's R&D

11:47:59AM is devoted to the App Store, then a revenue-based allocation
11:48:03AM of R&D would underestimate the expenses attributable to the
11:48:07AM App Store."

11:48:08AM A. Yeah. That's sort of like a tautology, isn't it? But,
11:48:13AM yes, that's what I said.

11:48:15AM Q. Okay. And I suppose the converse would be a tautology, as
11:48:18AM well.

11:48:18AM A. Correct.

11:48:19AM Q. So if very little of Apple's R&D is devoted to the App
11:48:23AM Store, then a revenue-based allocation would overestimate the
11:48:26AM expenses attributable to the App Store; right?

11:48:29AM A. Attributable to, yes.

11:48:31AM Q. That was what I asked.

11:48:33AM A. Whatever that might -- whatever that might have meant to
11:48:35AM me at the time, yes.

11:48:36AM Q. And are you aware that on the very last day of fact
11:48:40AM discovery in this case, Apple produced to Epic a document that
11:48:46AM contains actual allocations of R&D expenditures to the App
11:48:51AM Store?

11:48:52AM A. I'm aware of that.

11:48:53AM Q. All right. And sure enough, according to that document --
11:48:56AM I won't release any numbers and I will be as careful as
11:48:59AM Mr. Swanson would like me to be here -- according to that
11:49:03AM document, very little of Apple's R&D was actually allocated to
11:49:07AM the App Store; correct?

11:49:09AM A. That's my understanding, yes.

11:49:10AM Q. Okay. And that was a document that was put together for
11:49:13AM Mr. Cook and found in his files; correct?

11:49:17AM A. It was found in his files. How and who it was prepared
11:49:21AM for, I don't know, but I'm sure we'll all learn.

11:49:26AM Q. I didn't have the opportunity to ask Mr. Cook at his
11:49:28AM deposition because it hadn't yet been produced, so perhaps we
11:49:30AM will learn in due course.

11:49:33AM If it is true that the revenue-based allocation of joint
11:49:39AM costs overestimates expenses, then it would understate
11:49:43AM profits, as a matter of math; correct?

11:49:47AM A. Well, as I said, the -- any statement of profit specific
11:49:52AM to the App Store is arbitrary, so over or under really doesn't
11:49:57AM have an economic meaning here.

11:49:59AM Q. Right, sir, but I'm basing this off of your language from
11:50:03AM your rebuttal report.

11:50:05AM A. I make it a tautology because it's a question of what do
11:50:09AM you mean by "attributable to." I mean, if, in fact, most of
11:50:13AM the R&D at the corporate level was for the benefit of the App
11:50:17AM Store but yet you use a revenue-based allocation, well, then
11:50:24AM that misses the point of where the R&D was aimed.

11:50:27AM But I made the more general point this morning that R&D
11:50:31AM anywhere in this ecosystem is going to benefit, to a first
11:50:34AM approximation, all parts. So the allocation is not very
11:50:38AM meaningful.

11:50:39AM Q. Right. But it is an allocation that you are aware finance
11:50:44AM personnel at Apple have actually done in their jobs; correct?

11:50:49AM A. It does seem to have been done by personnel in Apple as
11:50:53AM part of their jobs.

11:50:54AM Q. And that's, in your experience, not at all uncommon for
11:50:58AM businesspeople to do allocation of joint costs for various
11:51:02AM purposes in running the business; correct?

11:51:04AM A. Well, it varies among businesses. I mean, this is
11:51:06AM managerial accounting, and the question is what's it for.
11:51:10AM It's usually for evaluating performance. And allocating joint
11:51:14AM costs is not real helpful in allocating -- in analyzing
11:51:19AM performance, but I'm sure we'll all learn why they did it.

11:51:23AM Q. My question, however, was it is something that people in
11:51:25AM the ordinary course, in your experience, do in businesses
11:51:29AM aside from Apple, just as a general matter, correct, to help
11:51:33AM run the business?

11:51:35AM A. Allocation of joint costs doesn't help you run the
11:51:37AM business. It is done. Even Mr. Sweeney said that, yes, his
11:51:41AM accountants sometimes do it, even though he considered those
11:51:43AM allocations meaningless. So it is done. Accountants love to
11:51:48AM do that sort of thing.

11:51:49AM But if you ask what's it good for, presumably, a business
11:51:53AM unit head has some control over revenue, has some control over
11:51:57AM direct costs, doesn't have control over allocated costs. So
11:52:00AM it's not obvious how useful it is, but it's done. I'll give

11:52:04AM you that.

11:52:05AM Q. After disputing the relevance of accounting profitability
11:52:10AM in your testimony in writing here, you do acknowledge that
11:52:18AM persistently high economic profit is suggestive of market
11:52:22AM power.

11:52:23AM A. I do, yes.

11:52:23AM Q. Okay. And you stand by that?

11:52:25AM A. I do.

11:52:25AM Q. And you've said something like that now for 40 years;
11:52:28AM correct?

11:52:29AM A. Well, I said something like that 40 years ago, and I stand
11:52:32AM by that, as well.

11:52:34AM Q. Okay. You remember being cross-examined about that once
11:52:36AM before, I imagine.

11:52:39AM A. I've been cross-examined by that a couple -- on that a
11:52:40AM couple of times. It was in a 1983 Harvard Law Review article.

11:52:47AM Q. In discussing the profitability analysis from Dr. Evans,
11:52:53AM one of the things that you did is you argued that successful
11:52:57AM technology companies, large and small, earn similar and at
11:53:02AM times higher operating margins than Apple as returns on their
11:53:06AM intellectual property; correct?

11:53:08AM A. I did say that, yes.

11:53:09AM Q. Okay. And you put together an exhibit, Exhibit 2 of your
11:53:13AM written direct testimony, that was intended to offer
11:53:18AM information about the operating margins of certain

publicly-traded companies that have online stores; is that right?

A. Yes. I think I took the list of companies from Mr. Barnes' list of people who operated stores. I think that's where that list came from.

MR. BORNSTEIN: Okay. And why don't we just -- can we put Exhibit 2 up. I guess we've marked it DX4861 -- or Apple has marked it DX4861.

Q. This is your Exhibit 2, sir?

A. It looks like it, yes.

Q. Great. And what you've done -- first of all, this doesn't break out margins that constitute returns on intellectual property, which is the way you described it in paragraph 112 of your report, does it?

A. No. There was no way to -- there is no way to do that.

Q. And the profit margins reflected here -- in fact, all of the financial information reflected here is on a company-wide basis; correct? It's not specific to the online stores that are run by these entities.

A. You're right. That was what was easily publicly available.

Q. Right. So, for example, just to take the first one, Samsung, they run a Galaxy Store, correct, on the Samsung phones; correct?

A. That's correct.

THE COURT REPORTER: I'm sorry, Your Honor, it went out again.

(Court reporter technical problems.)

THE COURT: Go ahead, Mr. Bornstein.

MR. BORNSTEIN: Thank you.

Q. So we were on -- we were on Samsung, and the -- I was saying that the financial figure -- or asking you the financial figures reflected for Samsung here are not limited to the Galaxy Store; correct?

A. That's correct.

Q. This covers Samsung's TV business and washing machine business and, if you go to Korea, you will discover they have a toilet business, too.

A. And I believe probably an insurance company, but yeah.

Q. Indeed.

And this says nothing about the profitability of the Galaxy Store; correct?

A. That's correct.

Q. Or the operating margin of the Galaxy Store; correct?

A. That's correct.

Q. And, in fact, Exhibit 2 as a whole, to your mind, doesn't say anything about whether Apple does or does not have market power in any individual line of business; correct?

A. That's correct. It just points out that Apple's operating margin is not out of line with other operating margins of

10:59:25AM companies large and small that are in the -- among other
10:59:29AM things, in the online store business.

10:59:31AM Q. Okay. Now, Apple --

10:59:33AM You can take this down, Mr. Rudd.

10:59:36AM Apple, as we've talked about just a little bit, does not
10:59:40AM require developers to use the IAP function for the sale of
10:59:46AM physical goods and services in the real world; correct?

10:59:48AM A. Indeed, it requires them not to use it. It doesn't -- it
10:59:51AM lets -- it requires them to use some other solution.

10:59:54AM Q. Indeed. And that distinction that Apple has chosen to
10:59:58AM draw you have called part of Apple's monetization strategy for
11:00:03AM its products and services; correct?

11:00:06AM A. That's a fancy name, but it's how they choose to price.

11:00:09AM Q. Right. It's how they have chosen to construct the
11:00:12AM business --

11:00:12AM A. Yes.

11:00:13AM Q. -- correct?

11:00:13AM And in your view, Apple could make a different choice;
11:00:18AM yes?

11:00:20AM A. It could make a different choice. There may be legal
11:00:23AM constraints that I'm unaware of, but -- but subject to those,
11:00:27AM it could choose a different strategy.

11:00:30AM Q. All right. And to be clear, I'm asking you now just about
11:00:33AM economics.

11:00:33AM A. Thank you.

11:00:34AM Q. The legal job to decide is neither yours nor mine.

11:00:39AM So let's put up Slide 13, Mr. Rudd, please, of what will
11:00:44AM be the end of our examination here.

11:00:48AM So for digital in-app purchases, which are the ones
11:00:52AM subject to the IAP requirement, there is a 30 percent
11:00:56AM charge -- typically, 30 percent charge that is collected;
11:00:59AM correct?

11:01:00AM A. Unless you are a small developer, that's correct.

11:01:02AM Q. And so there is -- there has been some talk, I guess you
11:01:06AM have heard, about that being a toll booth; correct?

11:01:09AM A. I did hear that language, yes.

11:01:10AM Q. All right. Well, we've tried to be cute and put together
11:01:12AM a car going through a toll booth.

11:01:15AM So let's put the toll booth up.

11:01:18AM Now, it's your view that if Apple wanted to -- again, as
11:01:22AM an economic matter -- it could also -- for physical in-app
11:01:25AM purchases, it could put up a toll booth, as well; correct?

11:01:30AM A. Just like Amazon and Wal-Mart.

11:01:32AM Q. Okay. And in your view, for revenue generated through
11:01:38AM advertising, Apple could put up a toll booth on that and
11:01:42AM collect a portion, as well; correct?

11:01:45AM A. Assuming it's technically feasible, assuming there is no
11:01:48AM legal obstacle, it could set a price.

11:01:51AM Q. All right. And the same thing is true for transactions
11:01:54AM that take place on the Safari browser on the iOS. As you

11:02:00AM understand it, as an economic matter, Apple could put up a
11:02:03AM toll booth there, too; correct?

11:02:08AM **A.** It could. It wouldn't seem to make a lot of sense, but,
11:02:11AM again, it could try to post that.

11:02:12AM It couldn't restrict the use of other browsers, which, of
11:02:15AM course, are available on the -- on iOS, but if it wanted to do
11:02:21AM that, it presumably could.

11:02:24AM **Q.** And when you say "it couldn't restrict the use of other
11:02:26AM browsers," I assume there you are giving a legal opinion.

11:02:29AM **A.** No. I'm reflecting the reality that there are other
11:02:32AM browsers available. If you're saying could it restrict other
11:02:36AM browsers and charge for web purchases on Safari, I think that
11:02:40AM is a legal question.

11:02:42AM **Q.** And you're aware for a long time Safari was the only
11:02:45AM browser on the iPhone; correct?

11:02:46AM **A.** I'm not sure that it restricted it to be the only browser,
11:02:49AM but it was the one that was pre-installed and, as an iPhone
11:02:53AM user, it's okay. I didn't look around.

11:02:56AM **Q.** Okay. Again, you don't know, though, I take it, one way
11:02:59AM or the other about whether there was a restriction making
11:03:02AM Safari the only browser at one point in time?

11:03:06AM **A.** Well, certainly the only one pre-installed. Whether they
11:03:10AM barred the installation of other browsers, I'd be surprised,
11:03:12AM but I don't know for a fact.

11:03:15AM **Q.** Okay. And so as an economic matter, the only things that

are preventing Apple from putting up these toll booths are competition, or the possibility of competition, and people's willingness to pay; fair?

A. I think that's probably right. That's true of anybody's pricing decisions.

MR. BORNSTEIN: I have no further questions for the professor. Thank you.

THE COURT: All right. Redirect.

REDIRECT EXAMINATION

BY MR. SWANSON:

Q. Professor Schmalensee, Mr. Bornstein put before you an article that you had written.

Were you the sole author of that article?

A. Remind me which article this was.

Q. I had -- well, I don't have the exhibit handy.

Mr. Bornstein, do you want to help me?

THE COURT: Do you want to stay talking into the mic, please.

MR. SWANSON: Sorry. I was asking Mr. Bornstein to help me. If you have a copy of the exhibit, the title of the article.

MR. BORNSTEIN: It's "An Instant Classic." I was asking Mr. --

THE COURT: We really can't hear you, so if you want that on the record...

BY MR. SWANSON:

Q. It's -- Mr. Bornstein said the title of the article is, "An instant classic."

A. Oh, sure. I remember that and I remember what he asked me.

Q. Okay. And I just asked, was that an article you authored alone or was that coauthored?

A. Oh, I might have coauthored it with David, but I -- Dr. Evans. I don't recall. I'm happy to take responsibility for that statement, however, if I'm allowed to clarify it.

Q. Well, this is the time. You used the phrase "winner-take-all struggle," I believe, in that article.

What did you mean by that?

A. Well, let me give an example. If somebody -- if people typically eat both Cheerios and Cornflakes, then you're normally competing, as the Cheerios person, for a little more Cheerios and a little less Cornflakes.

If they -- if everybody eats either all Cheerios or all Cornflakes, then you are competing for all of their business, not for all of the market. But for each consumer, it becomes winner take all, either I get all of their business for Cheerios or I lose it all to Cornflakes. And it didn't have to do with the market as a whole; it had to do with individual customers.

Q. And what does that have to do with the intensity of

11:05:40AM competition?

11:05:41AM **A.** Well, both kinds can be intense. Intense -- you can have
11:05:44AM intense competition on the margin for different shares of
11:05:47AM breakfast cereal, if you will, or in general, or you can have
11:05:52AM competition for the whole show: *I want to get them all.*

11:05:54AM You see both kinds in the world, right? People sign
11:05:58AM exclusive deals and you want exclusive deals with you.

11:06:02AM Sometimes you don't have exclusive deals and you're competing
11:06:05AM for a piece of the pie as opposed to the whole pie.

11:06:09AM But it's not taking over the market, which is what was
11:06:12AM sort of implied.

11:06:14AM **Q.** Now, Mr. Bornstein asked you about Apple's rules regarding
11:06:20AM in-app steering.

11:06:24AM Have your opinions about whether or not those rules are
11:06:31AM anticompetitive changed as a result of what -- of the
11:06:34AM interaction you had with Mr. Bornstein?

11:06:36AM **A.** No. He's very persuasive but not that persuasive.

11:06:42AM **Q.** Why not?

11:06:43AM **A.** Well, I mean, Apple posts a commission and Apple says, "We
11:06:49AM want to collect the commission, and we are going to rule out
11:06:52AM ways that you might try to avoid paying us." And they list a
11:06:57AM set of things, which you can consider reasonable or
11:06:59AM unreasonable, that they rule out so as to make it likely they
11:07:02AM will be able to collect their commission.

11:07:04AM And that's exactly the same -- the same thing as Amex. If

11:07:10AM you say you take the card, Amex says okay, you can't say you
11:07:15AM take the card, benefit from having the decal in the window,
11:07:18AM and then try real hard not to take the card.

11:07:20AM Apple says if you're on the App Store and you sign the
11:07:25AM contract and agree to pay the commission, we're going to limit
11:07:30AM the things you can do to avoid paying.

11:07:32AM We could talk about various things that might be done or
11:07:36AM might not be done, but it's the same thrust. You benefit from
11:07:41AM having the decal in the window; you benefit from being on the
11:07:45AM App Store and having access to Apple's intellectual property;
11:07:48AM and in both cases, you're obliged to pay a commission, and
11:07:54AM there are rules that say, no, no, you can't do things to avoid
11:07:57AM paying.

11:07:58AM So I -- I don't see the distinction. As I said, he's very
11:08:03AM persuasive, but he did not change my mind.

11:08:07AM **Q.** Professor Schmalensee, does Epic's Game Store being
11:08:10AM unavailable on iOS call for a different market definition in
11:08:14AM this case, in your opinion?

11:08:16AM **A.** No, for the reasons -- for the reasons I suggested.
11:08:19AM They're -- the question is they want to be an app store, they
11:08:24AM are an app store. They are mostly a game app store. So
11:08:30AM they're in that business.

11:08:31AM The complaint is Apple won't let other people distribute
11:08:36AM iOS apps. Well, that's precisely the complaint that they make
11:08:40AM in their role as a potential iOS distributor. It's precisely

the same complaint. So I don't see why it calls for a different market definition.

MR. SWANSON: Thank you, Professor.

No further questions.

THE COURT: Anything -- any recross, limited to the scope of redirect?

RECROSS-EXAMINATION

BY MR. BORNSTEIN:

Q. I just hope I can clarify that I didn't intend to mislead you, Professor. Let me direct you to "An Instant Classic" just one more time.

A. Okay.

Q. And I'll clarify for the record that this was written just by yourself, as reflected on the front page of the exhibit.

Do you see that?

A. Yeah, that's what I thought. I didn't remember a coauthor, but, hey...

Q. You've written so much with Dr. Evans, it's hard to keep track; right?

A. No, but I remember this one because -- well, for a variety of reasons. But anyway...

Q. All right. Let's just turn back to that language we looked at, and I will make this quick.

The sentence that I had focused on -- the two sentences I had focused on said, "In the case of smartphone operating

11:09:48AM systems, for instance, most consumers singlehome at any one
11:09:52AM time, while many developers multihome by writing apps for both
11:09:57AM Android and Apple's iOS."

11:09:59AM That's the first sentence; right?

11:10:01AM A. Yes.

11:10:01AM Q. And then you say, "Competition for singlehoming customers
11:10:04AM is a winner-take-all struggle for all of their business, while
11:10:08AM competition for multihoming customers is competition on a
11:10:12AM margin for a larger share of their business."

11:10:14AM A. It's as true here as it is true for breakfast cereals. So
11:10:19AM it's the same argument.

11:10:20AM Q. Great. And I was not intending to suggest that it was a
11:10:23AM winner-take-all struggle for the full market. It's, in fact,
11:10:25AM as you say, for all of their business --

11:10:27AM A. Right.

11:10:27AM Q. -- correct?

11:10:28AM A. Yes.

11:10:28AM Q. And that means for all of the business of a particular
11:10:30AM singlehoming customer; correct?

11:10:32AM A. Precisely.

11:10:34AM Q. And that is in part because those people have trouble
11:10:36AM switching from one side to the other and will stay and
11:10:38AM singlehome with one operating system; correct?

11:10:44AM A. No. It doesn't have to do with why they singlehome. It
11:10:49AM just has to do with the fact that they singlehome. Switching

11:10:52AM could be effortless.

11:10:54AM I -- I have some anecdotal experience on that, and let me
11:11:00AM just say it has nothing to do with the difficulty of
11:11:02AM switching. If they decide that I am -- if I decide that today
11:11:07AM I'm only going to use one of these two systems, then your
11:11:11AM competition is to get me to change. If I -- if I use them
11:11:16AM both, then it's for a share of my business. It doesn't have
11:11:19AM to do with switching costs.

11:11:22AM Q. And in this market, it is your view that people don't use
11:11:27AM both at the same time; fair?

11:11:30AM A. That's certainly true, they don't use both at the same
11:11:32AM time.

11:11:33AM MR. BORNSTEIN: All right. Nothing further,
11:11:34AM Your Honor.

11:11:35AM THE COURT: Anything on the "Instant Classic"?

11:11:40AM MR. SWANSON: No, Your Honor.

11:11:41AM THE COURT: Okay. Well, I have a question.

11:11:43AM THE WITNESS: Yes, ma'am.

11:11:44AM THE COURT: Or maybe a couple.

11:11:46AM THE WITNESS: Of course.

11:11:47AM THE COURT: So I have the ABA's antitrust law book up
11:11:52AM here, and I've heard quite a bit of evidence throughout the
11:11:57AM trial regarding how big Apple is, right, and how
11:12:05AM anticompetitive it is.

11:12:08AM I put in my preliminary injunction order a note with

11:12:13AM respect to essential facilities. Neither of the parties have
11:12:18AM any interest in briefing or providing evidence on that topic,
11:12:25AM but it says that "An essential facilities claim arises in a
11:12:34AM vertical context" -- which is what we're dealing with; right?

11:12:38AM **THE WITNESS:** Right, like Aspen Ski, yes.

11:12:40AM **THE COURT:** -- "and a plaintiff alleges that a
11:12:42AM monopolist has a duty to deal because its own facility or
11:12:46AM input is so superior to anything else available that
11:12:50AM competitors cannot succeed without accessing it."

11:12:55AM **THE WITNESS:** Right.

11:12:56AM **THE COURT:** So it sounds to me like what Epic is
11:13:00AM saying is that we want Apple to allow us to deal on their
11:13:05AM platform, their iOS, and there are only two of these
11:13:09AM platforms, and, therefore, because there are only two
11:13:14AM competitors, all of these competitors can't succeed without
11:13:18AM access to these platforms, this one and Google.

11:13:23AM To someone who has not practiced antitrust law for 40-plus
11:13:27AM years, it seems to me that this is -- that this is something
11:13:34AM which is in this doctrine, but apparently neither of the sides
11:13:38AM are interested in that.

11:13:39AM So why isn't it in that doctrine?

11:13:43AM **THE WITNESS:** Well, to someone who has never
11:13:44AM practiced antitrust law, I can -- I can -- I can give it a
11:13:48AM shot.

11:13:48AM I mean, if you -- if you go back to the -- I guess the

11:13:54AM Terminal Railroad case way back, I think -- where I think this
11:13:57AM doctrine had its origin -- I grew up near St. Louis, and there
11:14:01AM was only one bridge across the river, and if you wanted, as a
11:14:05AM railroad, to go west, you had to have that bridge. There was
11:14:09AM just no alternative.

11:14:10AM And the Terminal Railroad Association was a group of
11:14:14AM railroads -- it either owned the terminal or they owned the
11:14:17AM bridge -- and they could block east/west access.

11:14:20AM And the court said you have to have that. It is --

11:14:25AM **THE COURT:** But here --

11:14:25AM **THE WITNESS:** -- of the -- it is of the nature of a
11:14:27AM public utility. You can't have competition without it.

11:14:30AM **THE COURT:** Here the argument is that everybody has a
11:14:32AM communications device, that being a smartphone, and the only
11:14:37AM way to access those billions of customers is through Android
11:14:41AM or the iPhone.

11:14:43AM **THE WITNESS:** Well, but the essential facility
11:14:45AM doctrine -- an essential facility claim seems to me to arise
11:14:50AM here -- and this is sort of conversation over coffee with
11:14:53AM other economists and lawyers, and take it for what it's worth,
11:14:56AM it's -- it arises in Apple's claim that it's blocked competing
11:15:04AM with the App Store. It's blocked being a store.

11:15:07AM And so for that to work, it seems to me it has to be able
11:15:11AM to argue we can't be a viable store unless we can access those
11:15:17AM products. This is like Aspen Ski, right? We can't be a

11:15:21AM viable ski mountain unless we can have a joint pass with you.

11:15:26AM But, of course, they are a store and Steam is a store and
11:15:32AM there are lots of stores. So I think the reason Epic is --
11:15:40AM far be it from me to sit here as a poor economist and try to
11:15:44AM judge why they have decided what to plead, but I think the
11:15:48AM argument that we can't be in the store business without access
11:15:52AM to iOS apps just fails. I mean, they're in the store
11:15:55AM business. Other people are in the store business.

11:15:57AM Can they not distribute apps and access consumers? Well,
11:16:05AM if they want to access iOS, they have to go through the store.
11:16:08AM But they do, and they make a lot of money going through the
11:16:11AM store.

11:16:11AM So it's not essential -- you know, it could be -- let me
11:16:17AM take another shot -- it could be that Apple nominally gives
11:16:22AM them access but the terms are so unfavorable that as a
11:16:26AM business matter, they can't function. But they've made a lot
11:16:30AM of money going through that store, so I think they have
11:16:33AM trouble making the argument.

11:16:35AM Apple hasn't briefed it because they haven't had to. Epic
11:16:39AM hasn't briefed it, I think, right -- take an economist's
11:16:43AM advice on this? I'm not sure -- but Epic hasn't briefed it
11:16:47AM because I don't think there is a case there. But you asked.

11:16:49AM **THE COURT:** I did ask, and that's my prerogative.

11:16:55AM So, again, I know that neither of you are pursuing that
11:17:01AM theory, but if you want, Mr. Bornstein, you're welcome to

11:17:04AM follow up.

11:17:08AM **MR. BORNSTEIN:** I don't have any questions for
11:17:10AM Professor Schmalensee on that. I would just want to make
11:17:13AM clear for the Court that we have not abandoned that theory.
11:17:15AM It's in our conclusions of law, and we --

11:17:19AM **THE COURT:** I thought I had read that you did abandon
11:17:21AM it, but okay.

11:17:22AM **MR. BORNSTEIN:** I think you read Apple's
11:17:24AM characterization of our brief, Your Honor.

11:17:25AM **THE COURT:** Okay.

11:17:26AM Mr. Swanson, anything?

11:17:29AM **MR. SWANSON:** No. No, Your Honor. Thank you.

11:17:31AM **THE COURT:** All right. Well, thank you very much,
11:17:32AM sir. You are excused.

11:17:36AM **THE WITNESS:** Thank you, Your Honor.

11:17:37AM **THE COURT:** Next witness.

11:17:54AM **MS. DUNN:** Your Honor, Apple calls Dr. Francine
11:17:56AM Lafontaine.

11:17:59AM **FRANCINE LAFONTAINE,**

11:18:29AM called as a witness for the Defendant, having been duly sworn,
11:18:29AM testified as follows:

11:18:30AM **THE CLERK:** Please be seated. And then would you
11:18:34AM please state your full name and spell your last name, and then
11:18:38AM you're going to have to work that microphone so it's kind of
11:18:41AM below the shield there. Okay.

THE WITNESS: Francine Lafontaine, L-A-F-, as in Frank, O-N-T, as in Tom, A-I-N-E.

THE COURT: Okay. Good afternoon.

THE WITNESS: Good afternoon.

THE COURT: You may proceed, Ms. Dunn.

MS. DUNN: Thank you, Your Honor.

DIRECT EXAMINATION

BY MS. DUNN:

Q. Dr. Lafontaine, where do you currently work?

A. I work at the University of Michigan, the business school.

Q. And what's your position at the business school there?

A. So I'm the William Davidson professor of business economics, as well as the associate dean for business + impact, and in less than two weeks I will be the interim dean of the business school.

Q. Congratulations on your new position.

Have you prepared slides for use in connection with your testimony today?

A. Yes, I have.

Q. Okay. And if you -- hopefully, you have a binder up there.

A. Yes.

MS. DUNN: Your Honor, may I pass up the binders?

THE WITNESS: Yeah. This isn't mine.

Thank you. Thank you.

BY MS. DUNN:

Q. So you should have one binder with exhibits and one binder that contains your report and other materials, and at the front of that binder should be the slides that you prepared.

Do you see those?

A. I'm not quite there yet. I -- I'm sorry -- oh, got it.

Q. Great. They are also on the screen if that's helpful.

A. Yes, that is helpful.

MS. DUNN: And let's have the next slide.

Q. All right. Dr. Lafontaine, please explain to the Court your background -- educational background and professional background.

A. So I have an undergraduate degree in business from the University of Montreal in Canada, as well as a master's degree from there, and a Ph.D. in economics from the University of British Columbia in Vancouver, Canada.

Q. And how about your work experience?

A. So I have been at the University of Michigan now since 1991, so that has been a long time. I spent a few years before that at Carnegie Mellon University as a faculty member.

I also have -- was the director of the Bureau of Economics at the Federal Trade Commission in 2014 and '15, and I have served different roles in -- so I was the president of the IO Society and things along those lines.

Q. And as director of the FTC's Bureau of Economics, what

were your responsibilities?

A. So my responsibilities was to work with the staff at the -- in the Bureau of Economics and oversee the different set of matters that they were working on as -- as they would bring me information about the different matters, as I said, and we would discuss and -- their analysis and I would support and ask questions and they would let me know where things -- what they were finding, and I would also convey their conclusions to the commissioners and as well as my own opinion of the same.

Q. And what specifically is your area of professional expertise?

A. So my field within economics is industrial organization.

Q. Please describe for the Court just a few of your publications in that field.

A. So I've published a book entitled "The Economics of Franchising." I have also written a number of articles on vertical contracts, distribution, franchising, as well as retail and the public policy issues that come with that and the entrepreneurship component of that.

Q. And in your binder, there is Defense Exhibit 5546, which I'll just ask you to identify as your CV.

A. Yes. Thank you.

MS. DUNN: Your Honor, we move 5546.

THE COURT: No objection?

11:23:35AM **MR. BORNSTEIN:** None, Your Honor.

11:23:36AM **THE COURT:** It's admitted.

11:23:37AM (Defense Exhibit 5546 received in evidence)

11:23:37AM **BY MS. DUNN:**

11:23:38AM **Q.** Dr. Lafontaine, I know that you have prepared written
11:23:41AM direct testimony in this case on the topics of market
11:23:42AM definition and market power. In the interest of time today,
11:23:44AM we're going to focus on market definition.

11:23:47AM At a high level, when you are asked to define a product
11:23:50AM market, where do you start?

11:23:52AM **A.** So I start with the product at issue and think about what
11:23:58AM are possible substitutes from the perspective of consumers.

11:24:03AM **Q.** And what do you mean by "substitutes"?

11:24:05AM And, actually, I will ask Mr. Spalding if you could put up
11:24:14AM Slide 3.

11:24:15AM **THE WITNESS:** So the issue with substitutes is
11:24:16AM whether products satisfy the same consumer need. So you would
11:24:20AM look for different suppliers, different sellers of a similar
11:24:25AM product that consumers could substitute if ever the terms at
11:24:31AM which the product at issue would deteriorate. So price
11:24:36AM increase, quality decrease, things like that.

11:24:38AM **BY MS. DUNN:**

11:24:38AM **Q.** And from whose perspective should substitution be
11:24:42AM examined?

11:24:43AM **A.** So substitution is about consumer welfare, so it should be

11:24:47AM from the perspective of the customers of the product.

11:24:50AM And in this case, because the App Store is a transaction
11:24:55AM platform, the customers are both consumers and developers.

11:25:00AM And so that's the set of people that -- or entities that you
11:25:07AM would be looking at.

11:25:11AM **MS. DUNN:** Your Honor, I just received a note. I
11:25:13AM forgot to ask the Court to qualify Dr. Lafontaine as an
11:25:16AM expert, so we would ask for that.

11:25:19AM **MR. BORNSTEIN:** No objection, Your Honor.

11:25:21AM **THE COURT:** She's admitted.

11:25:22AM **MS. DUNN:** Thank you.

11:25:25AM **THE COURT:** It's not technically required, but she is
11:25:28AM admitted.

11:25:29AM **MS. DUNN:** I appreciate that.

11:25:31AM **Q.** Dr. Lafontaine, what, if any, role does the defendant's
11:25:36AM conduct play in assessing market definition?

11:25:40AM **A.** So the conduct typically would be the reason why some
11:25:44AM matter comes up; that is, there's a dispute of some sort. So
11:25:48AM the conduct would be part of that.

11:25:50AM But the definition of a market has to begin with the
11:25:54AM product around which we look for substitutes.

11:25:57AM **Q.** Okay. And why would you not look at the alleged conduct
11:26:02AM to figure out what products are good substitutes?

11:26:06AM **A.** Well, because conduct is not a product and therefore
11:26:09AM consumers don't consume the conduct. So what we need to look

11:26:14AM at is what is the product that's affected by the conduct and
11:26:18AM then think about what are the substitutes that consumers can
11:26:22AM turn to.

11:26:23AM Q. Okay. And is there -- do you have an example that you
11:26:26AM could offer that would help us understand this?

11:26:28AM A. So, for example, while I was at -- well, so an example
11:26:38AM would be something around a pair of shoes and needing
11:26:44AM different types, so high heels versus flat shoes are the
11:26:49AM substitutes for one another and what consumer need is being
11:26:54AM satisfied is the question.

11:26:56AM Q. And can there be more than one market?

11:27:00AM A. Yes. So conduct can affect more than one market. So an
11:27:06AM example of that would be a merger case that I was involved
11:27:11AM with while I was at the Federal Trade Commission where it was
11:27:14AM generic drug manufacturers producing different types of drugs
11:27:18AM that were merging.

11:27:18AM And so the question for the -- for the case was really to
11:27:24AM look at all of the different kinds of molecules and products
11:27:27AM that these firms were producing and examine, within each one,
11:27:32AM how many competitors there were and whether the merger would
11:27:37AM present a problem in each of them. So they were looked at
11:27:41AM separately, these different markets.

11:27:44AM Q. And your report addresses Dr. Evans' proposed market
11:27:50AM definition in this case?

11:27:52AM A. Yes, it does.

11:27:53AM Q. And at a very high level, what did you conclude about
11:27:55AM Dr. Evans' proposed market definition?

11:27:58AM A. That it is both too broad and too narrow.

11:28:03AM Q. Okay. And at a very high level, can you explain what you
11:28:05AM mean?

11:28:06AM A. Yes. So it is too broad because it does include all types
11:28:09AM of apps, and these are not all substitutes for one another, as
11:28:12AM he's mentioned himself.

11:28:14AM And it is too narrow because it focuses on only one place
11:28:17AM where consumers can go and where developers can go, and that's
11:28:21AM the iOS App Store.

11:28:26AM MS. DUNN: Mr. Spalding, if we could switch to the
11:28:29AM next slide.

11:28:30AM Q. Dr. Lafontaine, you prepared this slide to address your
11:28:32AM conclusion that the proposed market is too broad.

11:28:36AM Can you explain the first -- the first point you have on
11:28:41AM this slide.

11:28:44AM A. Right. So as I said, in market definition, we start with
11:28:47AM a product, and then we ask what are good substitutes for it.

11:28:51AM iOS app transactions that involve different kinds of
11:28:57AM apps don't meet the same consumer need, and, therefore,
11:29:00AM they're not good substitutes for each other. If I'm looking
11:29:03AM to download a game, I'm not likely to substitute to a cooking
11:29:09AM app, even though I enjoy cooking, or a spreadsheet.

11:29:14AM Q. And why do you say "good substitutes"? What do you mean

11:29:16AM by that?

11:29:17AM **A.** Well, you wouldn't want to include in the market something
11:29:19AM that the consumer wouldn't consider at all, things that are
11:29:23AM too far apart, but you also don't want to ask for substitutes
11:29:27AM to be perfect. That doesn't exist in most differentiated
11:29:32AM markets. Substitutes are, you know, not exactly what you
11:29:35AM might have chosen, but given the change in price or
11:29:38AM circumstances on the product that you might have chosen, you
11:29:41AM may decide to switch to this instead.

11:29:43AM **Q.** Okay. Let's move to your second point, which talks about
11:29:48AM clustering.

11:29:49AM Can you explain to the Court the second point.

11:29:52AM **A.** So, again, in -- in creating a market definition -- a
11:29:56AM product market definition, we're looking for substitutes. If
11:30:01AM products are not substitutes for one another, then one of the
11:30:04AM ways that we can put them in the same market is to create a
11:30:08AM cluster market. So we cluster all products together if they
11:30:14AM have the same market conditions fundamentally.

11:30:18AM So if the market conditions are going to be exactly the
11:30:21AM same across different products that don't substitute -- that
11:30:25AM are not substitutes for each other, then whether we do the
11:30:29AM analysis separately for each one of them, we would get the
11:30:33AM same answer many times. So for analytical purposes and to
11:30:37AM keep things a little bit more manageable, we put them together
11:30:40AM in a cluster market.

11:30:41AM Q. Okay. And I know you've prepared a couple examples to
11:30:44AM help talk about clustering.

11:30:45AM So if we could go to Slide 5.

11:30:48AM What are we seeing here?

11:30:51AM A. So this is, again, a case that I was involved with when I
11:30:55AM was at the FTC. Staples and Office Depot proposed to merge
11:31:00AM for the second time. They have now proposed a third time.
11:31:05AM And at the time -- the other two have been dropped, obviously.

11:31:08AM At the time, the FTC looked at this particular merger and
11:31:13AM was concerned about business customers in particular. So they
11:31:18AM found that business customers went to Staples and Office Depot
11:31:24AM in a major way to buy all sorts of different kinds of office
11:31:31AM supplies, so pen, paper pads, all sorts of things like that.
11:31:34AM Obviously, these are not products that are substitutes for one
11:31:36AM another, but they were products that were offered by the same
11:31:41AM set of options in the market. So Staples and Office Depot
11:31:46AM were very -- were big players in that, and there were just a
11:31:50AM few others, and they were the same for all these customers.

11:31:53AM So the FTC proposed, and the court accepted, a cluster
11:31:59AM market that consisted of all of the office supplies in
11:32:03AM question.

11:32:04AM At the same time, Staples and Office Depot also sold ink
11:32:08AM and toner. Ink and toner, though, business customers would go
11:32:13AM and get that from other suppliers, as well as from Office
11:32:17AM Depot and Staples. So in particular, they would go and buy

that from printer and copier manufacturers, so there was a set of options that was available for ink and toner that was not available for Staples and Office Depot.

And as a result of that, the FTC and the court -- the FTC proposed a market that did not include ink and toner, and the court accepted that market because the market conditions were different for that subset of products.

Q. And how would you apply this example to this case?

A. Well, we have a similar situation here in the sense that for different kinds of apps, there are different opportunities to transact.

So for game apps in particular, there are consoles, there are stores that specialize in games, in addition to general app stores, that make these transactions possible.

For other kinds of apps, there's a different set of options that may be available, but it -- they don't have exactly the same competitive -- well, they don't have the same competitive conditions between games and non-games. And as a result of that, clustering is not a -- is not something you could do here.

THE COURT: In this example, what was the market definition suggested by Staples and Office Depot?

THE WITNESS: They wanted the ink and toner to be included because that would have made it so that they had a smaller share, because they had a smaller share given these

11:33:53AM other sellers.

11:33:55AM **THE COURT:** I see. So they -- they were the ones
11:33:57AM that suggested the ink and toner?

11:33:59AM **THE WITNESS:** Yes.

11:34:00AM **THE COURT:** Okay.

11:34:02AM **MS. DUNN:** Your Honor, I have one more question on
11:34:04AM this example, but I also note the time.

11:34:08AM **THE COURT:** We have four minutes.

11:34:09AM **MS. DUNN:** Okay. Thank you.

11:34:11AM **Q.** Dr. Lafontaine, in this case, if a customer of ink and
11:34:15AM toner had brought the lawsuit, as opposed to the FTC, would
11:34:19AM that have required including ink and toner in the market,
11:34:23AM along with the other office supplies?

11:34:26AM **A.** No. So what would have happened then is that the case
11:34:28AM would have been focused on the options that are available for
11:34:32AM ink and toner customers, and that would mean both the printer
11:34:37AM and copier sources, as well as Office Depot and Staples. So
11:34:41AM the market would have been defined around that market.

11:34:45AM **Q.** If we could go to the next slide, Slide 6.

11:34:50AM So your next slide represents a hypothetical that you
11:34:54AM talked about in your report.

11:34:55AM Can you please explain to the Court what we're seeing on
11:34:58AM this slide.

11:34:59AM **A.** Yes. So this would be a hypothetical where we have a
11:35:03AM supermarket that sells a variety of different kinds of

11:35:06AM products, and it decides to impose a restriction on some of
11:35:10AM their suppliers, some kind of exclusivity rule, for example,
11:35:15AM or something like that.

11:35:16AM And a wine distributor decides to challenge that. Given
11:35:23AM that the wine distributor would be the challenger in a case
11:35:26AM like that, what would happen is that one could -- one would
11:35:31AM have to, in thinking about what the right market definition
11:35:33AM would be, think about not only -- well, think about the
11:35:37AM different places where customers do go and buy wine and also
11:35:41AM where distributors can make their wines available.

11:35:44AM And so it wouldn't be limited to supermarkets, since in
11:35:48AM most markets and most local markets, there would be some
11:35:51AM liquor stores that also sell wine and other -- so there might
11:35:57AM be other supermarkets that do -- that are definitely liquor
11:36:01AM stores, so the market would be defined to include all of these
11:36:04AM options since these are all ways in which consumers can get
11:36:09AM access to the product.

11:36:12AM **Q.** Okay. And you said earlier that focusing on conduct is
11:36:15AM not the way you define a product market.

11:36:17AM Can you apply that to this example?

11:36:21AM **A.** Yes. So the supermarket might have made this restriction
11:36:25AM quite general across a number of different product categories,
11:36:28AM but what matters in terms of the specific case that we're --
11:36:32AM that we would be talking about, which comes from the wine
11:36:35AM distributor, is what is available to the wine distributor and

11:36:38AM their customers.

11:36:39AM So other products that are sold in the supermarket, even
11:36:43AM if that constraint is imposed on that, that is not a relevant
11:36:49AM part of the market.

11:36:50AM Q. Okay. And so if a different kind of distributor, like a
11:36:53AM flower distributor, brought the same case as the wine
11:36:56AM distributor, what happens then?

11:36:58AM A. Well, if it's a flower distributor, the question is going
11:37:00AM to be where else do flowers get sold. And so you might have
11:37:05AM flower shops in that market. You probably would have other
11:37:09AM supermarkets. So you would have to look in that local
11:37:13AM vicinity what are the options for the flower shop -- for the
11:37:17AM flower distributor.

11:37:18AM Q. Okay. And just to take this analogy one step -- and only
11:37:22AM one more step -- further, what happens to the market
11:37:26AM definition analysis for the wine if the liquor stores that
11:37:32AM you've spoken about sell not only wine but some other items,
11:37:35AM like crackers?

11:37:37AM A. Well, the liquor stores are still -- the crackers and
11:37:41AM these other things are not the things that bring people to the
11:37:45AM store. That's not what the store is recognized as being
11:37:50AM involved in. It's mostly the wine and the liquor that brings
11:37:53AM customers, because these are stores that portray themselves as
11:37:57AM selling that.

11:37:57AM And so as a consumer, I would go to those stores for wine

11:38:01AM and liquor and not for the crackers specifically typically,
11:38:04AM and so it doesn't really affect the market definition.

11:38:10AM Q. And what, if anything, does that have to do with
11:38:12AM substitution?

11:38:14AM A. Well, it's still the case that as a consumer, my options
11:38:19AM are to go across -- to go across the street to the liquor
11:38:24AM store, to the other supermarket. All these options are
11:38:27AM substitutes, from my perspective.

11:38:28AM And as a distributor, the same thing; fundamentally, all
11:38:32AM these options are substitutes. So I would include all these
11:38:35AM options in the market. It doesn't really change anything that
11:38:39AM there are crackers or other things in the store -- in the
11:38:42AM liquor store.

11:38:44AM THE COURT: Is this a good breaking point?

11:38:45AM All right. We will stand in recess for our second break.
11:38:49AM I will have you back on the stand at 1:15.

11:38:53AM THE WITNESS: All right. Thank you.

11:38:54AM THE COURT: We'll stand in recess. Thank you.

11:38:55AM (Luncheon recess was taken at 12:38 p.m.)

11:38:55AM (Resumed at 1:15 p.m.)

11:38:55AM THE COURT: We are back on the record. The record
1:15:36PM will reflect I have both parties back. Professor is on the
1:15:42PM stand.

1:15:42PM You may proceed.

1:15:44PM MS. DUNN: Thank you, Your Honor.

BY MS. DUNN:

Q. Professor Lafontaine, just to remind you where we were, you had just testified that if crackers were available and offered at the wine store, it would not change substitution patterns. So that's a paraphrase, not to replace your actual testimony. I want to ask you a similar question concerning the Epic Games Store.

Does the recent edition of Spotify or other nongame apps over the past few weeks to the Epic Games Store change your analysis?

A. No.

THE WITNESS: Sorry, I haven't figured out where this was. Can you hear me okay?

THE REPORTER: Yes.

THE WITNESS: All right.

So it wouldn't change my analysis because, fundamentally, it's still the case that consumers would have the option of going to the Epic Games Store to buy games, that they can have options to go elsewhere to transact in game -- to engage in game transactions.

And the Epic Games Store is still mostly, from the consumer's perspective, just like the liquor store, a place that they would think of to go for games, given what it has been.

Q. And did you -- in reviewing Dr. Evans' report, did you

also listen to his testimony?

A. Most of it, yes. I had to excuse myself for a couple of meetings, but, yes, most.

Q. Okay. And did Dr. Evans find a cluster market in this case?

A. No. He did not look for one.

Q. Okay. In a situation where a cluster market has not been defined, can you define a market around a store with many products simply by labeling the market distribution?

A. No. So you would still need to think about what are the competitive opportunities -- what are the things that consumers can substitute to. So depending on the kinds of products that are within the store, you would look at different sets of them, just like the FTC did for the pharmaceutical generic drug analysis. They looked at the different drugs and looked at whether there was competition in each of these markets.

Q. And what value, if any, does a SSNIP test have for a proposed market of a large group of products that does not meet the standard for a cluster market?

A. Well, it's confusing to run such a test because you are really mixing products that don't compete with one another, that are not substitute for each other. So I think you would mostly get noise out of performing such a test.

Q. Okay. Now, you also said earlier that part of your

opinion is that Dr. Evans' iOS app distribution market is too narrow.

And I know that you covered that in your written direct testimony; is that right?

A. Yes, I do.

Q. Okay. And --

A. Do you want me to expand on that a little bit?

Q. I think -- in the interest of time today, I think if you could expand on it at a high level --

A. Yeah.

Q. -- that would be very helpful.

A. So, basically, it is too narrow because it focuses on the one platform, and consumers have options to go and transact on other platforms.

Q. And what are you relying on for your conclusions?

A. So in terms of this particular aspect, there are statements by Mr. Sweeney that he gave in deposition, as well as a document from Microsoft, that talks about other platforms competing with their own. And so documents along those lines, as well as the reports of my colleagues, Professor Hitt and Professor Schmalensee.

MS. DUNN: Mr. Spalding, if we can go to Dr. Lafontaine's Slide 7.

BY MS. DUNN:

Q. And I would like to follow up, Dr. Lafontaine, on what

1:20:03PM you've talked about already with regard to the SSNIP test.

1:20:07PM Can you please explain -- you see on the slide that you
1:20:11PM prepared there's one part that talks about the hypothetical
1:20:16PM monopolist test and another part that talks about SSNIP test.

1:20:19PM What is the difference between these two things and how do
1:20:24PM they relate?

1:20:25PM **A.** So the hypothetical monopolist test, one way to think
1:20:28PM about that is it is not exactly a test, it is a framework or a
1:20:32PM conceptual exercise. It is trying to think about market
1:20:36PM definition, what are the limits of the market, by looking at
1:20:41PM if I was to combine in a single firm a set of products that
1:20:46PM currently are not part of the same firm -- and you can see why
1:20:50PM this was partially developed in the context of merger
1:20:55PM analysis -- if we were to combine these products in a single
1:21:00PM firm, would that firm have incentives to increase the price in
1:21:02PM a -- would that be profitable for the firm to do. So it's
1:21:08PM kind of that conceptual notion, as opposed to an actual
1:21:13PM quantitative test.

1:21:14PM So people typically use SSNIP as a way of talking about a
1:21:20PM specific quantitative version of the hypothetical monopolist
1:21:26PM test in some sense, where the standard thing is to look for a
1:21:30PM 5 percent or a 10 percent increase in price, whether that
1:21:34PM would be profitable.

1:21:35PM **Q.** And in defining a market, do you need to do a SSNIP test?

1:21:39PM **A.** No, you don't. So a lot of the reasons for the SSNIP

1:21:44PM test -- what the SSNIP test helps you see is whether the
1:21:49PM market is too narrow.

1:21:50PM The agencies, for example, in thinking about a variety of
1:21:57PM monopolization and merger cases, have to very often have the
1:22:04PM other side --

1:22:05PM **MR. BORNSTEIN:** Excuse me, Your Honor, I -- excuse
1:22:05PM me. I object -- to the extent the witness is talking about
1:22:09PM the agencies from a legal perspective, I would object. To the
1:22:14PM extent she is talking economics, I have no objection at all.

1:22:18PM **THE COURT:** That is an appropriate objection. I will
1:22:20PM admit it for that limited purpose.

1:22:26PM **THE WITNESS:** So they often have to justify -- or
1:22:36PM parties often want a broader market than what the agencies are
1:22:39PM trying to define. And as a result of that, trying to --
1:22:43PM having a test that allows them to say whether it is too narrow
1:22:46PM or not is really helpful.

1:22:48PM So that said, it can be a very informative piece of
1:22:52PM information, so I'm not trying to say anything other than
1:22:55PM that. The SSNIP test is a useful test to determine the
1:23:00PM boundaries of markets, obviously.

1:23:02PM **BY MS. DUNN:**

1:23:02PM **Q.** And from your perspective as an economist, what, if any,
1:23:06PM value does a SSNIP test have in the single-brand market?

1:23:11PM **A.** So in the single-brand market, it's really puzzling to do
1:23:17PM a SSNIP test in the sense that you've already stipulated that

you're just looking at a particular firm and its products. So that firm already has a hundred percent of the products that you are talking about, and so the SSNIP test is -- just conceptually, the exercise is not very valid.

Q. Okay. And did you do a SSNIP test in this case?

A. No, I did not.

Q. And can you apply the opinion you just stated to Dr. Evans' SSNIP test in this case?

A. So he has two tests that are one-sided tests of the iOS app distribution market, which he defines to be just for iOS and, therefore, are single-brand markets. So those don't provide much information.

What he finds at the end is that Apple could charge higher commission, is what, according to his analysis, results from the test that he performed on that particular market. But, again, even the conceptual exercise in that context is problematic.

Q. Okay. Why is it problematic?

A. Because you started by saying the firm has all of the markets, so asking what would -- which -- what would the company want to do if it had all the market, then it's circular.

MS. DUNN: All right. Mr. Spalding, if we can go to Dr. Lafontaine's Slide 8, please.

BY MS. DUNN:

Q. So this slide refers to Dr. Evans' single-sided SSNIP test.

Just clarify, if you would, why it says "single-sided."

A. Well, so Professor Schmalensee has already discussed the two-sided SSNIP tests that are done by Dr. Evans, so this slide is mostly focusing on the other four, on four of his seven tests.

So this slide is about the one-sided market tests. And the first point that it mentions is that given that he's agreed that it -- that the App Store is a two-sided platform -- transaction platform, the SSNIP tests don't take into account the indirect network effects and, therefore, are problematic.

So all four of these tests, the single-sided SSNIP tests, suffer from the flaw and from the other three that I have on there.

Q. Okay. What about this -- you just addressed the first point. What about the second point on the slide?

A. So the tests that he is performing also don't allow -- the information that he's using doesn't really give consumers or developers the options to engage in the most obvious type of substitution that they might want to engage in.

So for developers, for example, the test is testing -- is arguing about leaving the platform entirely instead of

1:26:28PM changing monetization or increasing price or something like
1:26:32PM that. For the consumers, the test is focused on not having
1:26:39PM access to different activities and things like that.

1:26:44PM So he's just not allowing -- he's not allowing the
1:26:49PM consumers to just go and buy, for example, V-Bucks on the
1:26:53PM website and then bring them back into the platform where they
1:26:58PM might want to use them. So there are other options that are
1:27:00PM available to both consumers and developers that are not taken
1:27:04PM into account in the way that he performed his analysis.

1:27:08PM Q. Thank you, Professor Lafontaine.

1:27:09PM If you could explain your third point on the slide.

1:27:13PM A. So the third point is about the prices that he's going to
1:27:17PM use. So a SSNIP test starts from the price of a product and
1:27:23PM asks if the firm would want to increase it by 5 or 10 percent.

1:27:29PM So here, the -- for example, for the operating system, he
1:27:34PM doesn't have a price for the OS -- the iOS, so he uses a
1:27:39PM price for a product that was sold 10 years ago, which is the
1:27:43PM Windows operating system. The price he uses is from 10 years
1:27:49PM ago and it's a price to makers of phones, so to OEMs, and the
1:27:56PM price that he finds is 30 or \$50. So the SSNIP that he
1:28:01PM applies to that is 10 percent, which means he says would it be
1:28:05PM profitable to increase price by \$3 or by \$5.

1:28:10PM And then having found that would be the right level of
1:28:13PM price change to look at, he says, okay, well, 3 or \$5 is so
1:28:20PM small compared to the price of a phone that no one would

really react to that. But the product that he was talking about was the operating system, and he is then interpreting it in terms of the -- relative to the price of the phone. So that kind of issue comes up in his tests.

Q. And to finish this out, what about the fourth point?

A. So Dr. Evans actually said that he doesn't have real-world data on price changing -- price changes that would lead to a change in -- that would lead to substitution.

And, in fact, that is the reason that the experts on the -- that I didn't perform any SSNIP test, is that there isn't really data on substitution patterns that we could use to do that because there aren't price changes.

Q. And are these four flaws with the single-sided SSNIP tests the only flaws that you found?

A. No, there are others. They are described in my written direct. But these were things that applied to -- across the tests.

THE COURT: Do you know where he gets the \$10 figure?

THE WITNESS: Sorry. Could you say that again?

THE COURT: Do you know where he got the \$10 figure?

THE WITNESS: If I interpret that correctly, that would be on the developer side. He has a \$10 SSNIP because they pay \$99 to get access.

THE COURT: Okay.

BY MS. DUNN:

Q. And, Dr. Lafontaine, do you have an example of a SSNIP done with actual data?

A. So I can think of one that colleagues have done. The Humana/Aetna case had a very nice illustration of -- they had a lot of data, so they were able to calculate the whole demand substitution pattern. Fundamentally, that is the ingredient that one needs to be able to do this, is to be able to see price changes and reactions by consumers so that you can estimate how consumers reallocate their choices when prices change. And so they had very detailed data about that across different geographic markets, and they were able to estimate a good demand system.

And once you do that, you are able to then really do a comparison of what happens if these products are all owned and managed by a single firm, so what are the prices they would want to charge in that case, how high are they. And then you can compare, are they 5 percent higher, are they 10 percent higher. So they had all the detailed information that one would need to be able to perform a very nice test.

THE COURT: Was that a private case or a government case?

THE WITNESS: A government case, a DOJ case.

MS. DUNN: Mr. Spalding, if you could put up Dr. Lafontaine's Slide 9.

1:31:32PM **BY MS. DUNN:**

1:31:32PM **Q.** I would like to switch gears and talk a little bit about
1:31:36PM Dr. Evans' foremarket and aftermarket framework.

1:31:40PM In your opinion, should the foremarket and aftermarket
1:31:40PM framework be applied in this case?

1:31:45PM **A.** No, it should not.

1:31:46PM **Q.** Why not?

1:31:48PM **A.** So consumers don't really -- because of multihoming, which
1:31:53PM I think has been discussed quite a bit in the previous
1:31:57PM testimony, consumers don't really need to incur the cost of
1:32:01PM changing their device or even switch the device that they are
1:32:05PM using in order to transact. So they can go buy V-Bucks on
1:32:10PM Safari while on the phone, as well as being on a PC or
1:32:15PM anything else.

1:32:16PM So there are lots of ways that they can reach and make
1:32:21PM transactions, and as a result of that, they don't -- there's
1:32:25PM not a foremarket product that kind of locks them into the
1:32:29PM aftermarket purchases having to be done in a particular way.

1:32:34PM **THE COURT:** And what data do you have for that
1:32:35PM proposition?

1:32:37PM **THE WITNESS:** So we have data about game developers
1:32:45PM being present on lots of different platforms. I am relying,
1:32:50PM in part, on Dr. Hitt's analysis on that. And we have data
1:32:56PM about consumers of games having other devices. Dr. Henson's
1:33:02PM survey elaborated on that.

1:33:06PM **THE COURT:** And that's all?

1:33:08PM **THE WITNESS:** There's been, in my understanding, some
1:33:11PM testimony, as well, that presented that.

1:33:14PM **THE COURT:** Based -- aside from the other testimony,
1:33:17PM I'm interested on what your opinion is based. So your opinion
1:33:22PM is based on Dr. Hitt --

1:33:25PM **THE WITNESS:** And Dr. Henson's survey.

1:33:28PM **THE COURT:** Okay. Go ahead.

1:33:29PM **MS. DUNN:** Thank you.

1:33:30PM **BY MS. DUNN:**

1:33:30PM **Q.** And, Dr. Lafontaine, when you say the issue is
1:33:34PM transactions, as opposed to iOS app distribution, what do
1:33:38PM you mean by that?

1:33:40PM **A.** Well, so this is a two-sided transaction platform. What
1:33:47PM the App Store allows consumers and developers to do is to meet
1:33:52PM and transact on the platform. So that makes -- that is a
1:33:59PM different type of exchange than simply buying something and
1:34:07PM owning it and not having further transactions about it. So
1:34:12PM it's a difference, in part, between pay and play, the fact
1:34:16PM that you are able to -- like for certain products, you just
1:34:20PM pay for them and take them home or you have them on your phone
1:34:24PM or something. But in a lot of cases that we have here, you
1:34:29PM also have the opportunity to pay somewhere and then play
1:34:34PM somewhere else.

1:34:37PM **MS. DUNN:** If we can go to your Slide 10.

1:34:39PM **BY MS. DUNN:**

1:34:39PM **Q.** All right. So you just explained that, in your opinion,
1:34:44PM the foremarket/aftermarket framework does not apply, but for
1:34:49PM the purposes of this question, let's assume it does apply.

1:34:52PM Does that mean that there's anticompetitive harm?

1:34:56PM **A.** So economists usually think in terms of three factors
1:35:03PM to -- as to determine whether that is an issue whether -- so a
1:35:11PM foremarket/aftermarket context can arise without raising
1:35:15PM anticompetitive concerns, as I've just said.

1:35:19PM When trying to analyze whether it does, we would look at
1:35:23PM whether there is competition in an appropriately defined
1:35:27PM foremarket. So an issue with the current framework that
1:35:30PM Dr. Evans has proposed is that the market -- the operating
1:35:35PM system is not something that consumers buy and it is also not
1:35:39PM something that developers buy. What consumers buy is a
1:35:43PM device, and there is much more competition in the device
1:35:48PM market than there is in the -- so there is competition in that
1:35:54PM market.

1:35:56PM You would also look to see whether information has been
1:35:58PM available about the aftermarket terms and the costs of the
1:36:05PM device after you've made the original purchase. And there
1:36:10PM is -- there are lots of websites, there is a lot of
1:36:14PM information about phones and options, as well as there's
1:36:19PM different ways to use the phone where you would use more or
1:36:21PM less apps. And so there are lots of ways in which one can

1:36:28PM think about what their cost would be after having purchased
1:36:31PM the phone.

1:36:33PM And then, finally, it's important to determine whether
1:36:36PM there's been changes in the aftermarket terms. And what we've
1:36:41PM heard is that -- from Dr. Evans is that there has not been
1:36:47PM changes in the aftermarket terms.

1:36:51PM Q. And when you say that, what are you speaking about
1:36:56PM specifically?

1:36:57PM A. I'm speaking about the commission and the specific -- you
1:37:02PM know, the constraints that Dr. Evans has mentioned in terms of
1:37:06PM exclusivity.

1:37:10PM MS. DUNN: Your Honor, I pass the witness.

1:37:13PM THE COURT: Cross. Mr. Bornstein, you may proceed.

1:37:13PM MR. BORNSTEIN: Thank you.

1:37:29PM **CROSS-EXAMINATION**

1:37:32PM BY MR. BORNSTEIN:

1:37:39PM Q. Gary Bornstein for Epic. Professor, nice to meet you.

1:37:44PM A. Nice to meet you as well.

1:37:45PM Q. You just answered a question a bit ago from Apple's
1:37:50PM counsel about the Humana/Aetna transaction.

1:37:52PM Do you recall that?

1:37:53PM A. Yes.

1:37:54PM Q. Is that in any of your expert reports?

1:37:57PM A. That one specifically, that example, no.

1:38:01PM MR. BORNSTEIN: Your Honor, I'd move to strike that

1:38:02PM portion of the testimony.

1:38:04PM **THE COURT:** Granted.

1:38:05PM **BY MR. BORNSTEIN:**

1:38:07PM **Q.** Professor, prior to this case, you've never served as an
1:38:14PM expert in a Sherman Act matter, have you?

1:38:21PM **A.** I think that that would be correct.

1:38:22PM **Q.** Okay. And prior to this case, you've never served as an
1:38:26PM expert providing an opinion on the subject of market
1:38:31PM definition, correct?

1:38:32PM **A.** Correct.

1:38:33PM **Q.** And you've never served as an expert providing an opinion
1:38:37PM related to two-sided platforms, correct?

1:38:39PM **A.** Correct.

1:38:41PM **Q.** And you've not published any articles on the subject of
1:38:48PM market definition in antitrust, correct?

1:38:50PM **A.** You're right.

1:38:51PM **Q.** Nor have you published any articles on the subject of
1:38:55PM two-sided platforms, correct?

1:38:56PM **A.** Correct.

1:38:57PM **Q.** And just to follow up on a question that you responded to
1:39:02PM from the Court, so that it's clear, am I correct that you
1:39:08PM haven't done any independent analysis of the market data here?

1:39:15PM **A.** So my team worked with the team that supported Professor
1:39:19PM Hitt, and I had questions at times that I would convey and
1:39:26PM that I would get answers about. But I have not done analysis

1:39:31PM directly.

1:39:32PM Q. Okay. And you're not offering an opinion based on any
1:39:38PM data that you or even your team have constructed, you're
1:39:43PM relying on the data work done by Professor Hitt and Professor
1:39:47PM Hanssens; is that right?

1:39:49PM A. That's correct. Just like I did when I was managing
1:39:52PM people at the Federal Trade Commission, I relied on their
1:39:56PM expertise.

1:39:57PM Q. Very good.

1:39:59PM At the beginning of the examination by Ms. Dunn, there was
1:40:05PM some discussion about whether market definition begins with
1:40:09PM the product or with the conduct.

1:40:10PM Do you recall that?

1:40:12PM A. I do recall.

1:40:13PM Q. And your testimony was that you don't begin with the
1:40:16PM conduct; is that right?

1:40:17PM A. That's correct.

1:40:20PM Q. Do you recall saying in your rebuttal report that the
1:40:23PM general role of market definition in antitrust matters is to
1:40:29PM identify the competitive constraints relevant to the conduct
1:40:32PM at issue?

1:40:33PM A. I do recall that.

1:40:34PM Q. And you continue to stand by that?

1:40:37PM A. Yes, because -- so what I was being asked about is product
1:40:42PM definition, is my understanding.

1:40:44PM Q. Well, this was your report, and you wrote -- and I am
1:40:47PM happy to show it to you if that's helpful. "The general role
1:40:50PM of market definition in antitrust matters is to identify
1:40:54PM competitive constraints relevant to the conduct at issue."
1:40:57PM Those are your words?
1:40:59PM A. Those are my words.
1:41:00PM Q. Okay. And do you stand by those words from your rebuttal
1:41:04PM report?
1:41:04PM A. I do.
1:41:05PM Q. Okay.
1:41:05PM A. The role of -- is -- so the role of market definition,
1:41:09PM what I was responding to was how -- how does product -- market
1:41:16PM definition, where does it -- how does it work.
1:41:22PM Q. So your testimony is in order to identify the competitive
1:41:27PM constraints relevant to the conduct, you start with the
1:41:31PM product.
1:41:31PM Am I understanding that?
1:41:33PM A. Yes, the product at issue.
1:41:34PM Q. Okay. So you didn't say anything in your written direct
1:41:40PM testimony along the lines of what appeared in your rebuttal
1:41:44PM report about identifying the constraints relating to the
1:41:47PM conduct at issue; is that right?
1:41:49PM A. That might be -- yes. I will take your word for that,
1:41:53PM yes.
1:41:54PM Q. Okay. So in this case, what is the product?

1:42:00PM **A.** So in this case, the product at issue is the capacity of
1:42:05PM consumers and developers to transact. So the product is
1:42:10PM transactions.
1:42:13PM **Q.** And is it any narrower than that or is it just
1:42:17PM transactions?
1:42:18PM **A.** Well, it is the set of transactions that are relevant to
1:42:20PM the case at hand. So given -- we need to think about what are
1:42:27PM the ways in which consumers and developers in similar -- so
1:42:35PM similarly situated is the expression that I used in my
1:42:39PM report -- would be able to rely on in order to make these
1:42:44PM transactions.
1:42:45PM **Q.** Well, how do you decide which transactions are the product
1:42:51PM here?
1:42:52PM **A.** Well, so the product relates to what -- from a -- from the
1:43:03PM perspective of consumer welfare, right, we need to think about
1:43:08PM where the harm is, and that means which type of consumers are
1:43:16PM going to be involved in these types of transactions as well,
1:43:19PM right?
1:43:19PM So the product at issue is the set of transactions that
1:43:25PM are relevant to the parties in this case.
1:43:31PM **Q.** And so your selection of the product depends on who the
1:43:41PM plaintiff is; is that fair?
1:43:42PM **A.** Well, just like in the case of the wine distributor, it
1:43:46PM matters that I look at who else in the local market is
1:43:53PM available for the wine distributor to sell their wine and --

1:43:57PM as well as consumers to buy the wine.

1:44:00PM It does matter that -- I have to think about what options
1:44:06PM are available to the similarly situated -- sorry, it is a word
1:44:13PM I have trouble saying -- developers and consumers.

1:44:18PM Q. So I did my best not to interrupt, but I would appreciate
1:44:23PM it if you'd just try and focus on the question.

1:44:26PM What I had asked was, whether your determination of a
1:44:32PM relevant product here for defining a market depends on the
1:44:36PM identity of the plaintiff. "Yes" or "no"?

1:44:39PM A. No, it does not.

1:44:41PM Q. Okay. If a different plaintiff had brought this case, say
1:44:47PM the Match Group, would you go about defining the market
1:44:52PM beginning with game transactions?

1:44:54PM A. Just like I said for the flower case, I would be looking
1:44:58PM for what the options are for flower shops.

1:45:02PM So the answer to that would be that it would matter that
1:45:08PM this is an entity that is engaged in a different set of
1:45:12PM transactions.

1:45:14PM Q. So in that case, your process for defining the relevant
1:45:19PM market does begin with the identity of the plaintiff and the
1:45:23PM product that it is affected by; is that fair?

1:45:27PM A. So to me, that's not the identity -- it's the product that
1:45:32PM determines what the market definition is.

1:45:36PM Q. All right. I'll try and take that on board.

1:45:40PM The way you go about defining the market depends on the

1:45:44PM plaintiff's product; is that correct?

1:45:48PM **A.** So the -- in the sense of -- there's -- the conduct -- no,
1:45:57PM sorry. I'm struggling a little bit with trying to answer your
1:46:02PM questions. I'm trying my best.

1:46:05PM It does matter that there is a set of options for this
1:46:10PM product. I need to think about what are the ways in which
1:46:13PM consumers and firms can reach each other, and, therefore, it
1:46:16PM does matter what product we're talking about.

1:46:20PM So, yes, in that sense, just like I did for the wine
1:46:25PM distributor, there is something about the fact that we are
1:46:28PM talking about wine distribution that will matter in
1:46:31PM determining what the right product market is, not in terms of
1:46:36PM definition, but which one is relevant.

1:46:39PM **Q.** Well, there are a variety of products that are sold to a
1:46:45PM heterogeneous set of customers; is that fair?

1:46:50PM **A.** You mean in the App Store? Is that --

1:46:54PM **Q.** No, I mean in the abstract.

1:46:56PM **A.** Oh, okay. Yes, there are lots of products in -- you know,
1:47:02PM available to consumers in the market.

1:47:07PM **Q.** And there are markets in which the available consumer base
1:47:11PM or customer base is heterogeneous, meaning there are all sorts
1:47:16PM of different people who are consumers, correct?

1:47:20PM **A.** Yes.

1:47:21PM **Q.** And in a business-to-business-type market, there are
1:47:25PM situations in which there are all sorts of different business

1:47:29PM customers who purchase a common input from a supplier,
1:47:33PM correct?

1:47:33PM **A.** So you -- my difficulty here is that it might represent
1:47:44PM something -- so the input in question may differ to some
1:47:52PM degree across customers.

1:47:54PM But I'm not sure exactly what you're trying -- so maybe I
1:47:59PM should ask you to repeat your question.

1:48:01PM **Q.** I can try and give an example. Maybe that will advance
1:48:05PM things.

1:48:06PM Assume a commodity market; somebody buys iron, somebody
1:48:13PM sells iron. And lots of people need the same iron. Some
1:48:18PM people are car makers, and some people make I-beams for
1:48:24PM skyscrapers. And let's just assume -- because it is over my
1:48:27PM degree in metallurgy, let's assume it's all the same item,
1:48:30PM okay?

1:48:30PM There are markets like that where there are heterogeneous
1:48:34PM businesses that purchase a common input, correct?

1:48:38PM **A.** Well, in your iron case or metal -- I'm also not good in
1:48:44PM metallurgy -- there would usually actually be different
1:48:48PM versions of this product that might be used by different types
1:48:50PM of customers, and they might have different options as to what
1:48:54PM they could use instead of the iron. So...

1:48:58PM **Q.** Professor, I tried to deal with the first part of that by
1:49:01PM asking you to assume that they are all buying the same
1:49:05PM commodity, okay?

1:49:08PM **A.** Right. So in the commodity market, we -- there would be a
1:49:13PM more consistent -- there are not many commodities that -- out
1:49:21PM there, but -- because most products are differentiated to some
1:49:27PM degree. But, yes, if it is a single commodity that everyone
1:49:31PM is purchasing, you could have a market that is defined just
1:49:36PM based on that one product.

1:49:39PM **Q.** Okay. Let's transfer this discussion to American Express,
1:49:47PM who we've talked about a lot in this case.

1:49:50PM American Express provides credit card services, among
1:49:54PM other things, correct?

1:49:55PM **A.** Yes.

1:49:56PM **Q.** And American Express provides credit card services to a
1:50:00PM wide variety of merchants; is that right?

1:50:03PM **A.** Yes.

1:50:04PM **Q.** And they are all receiving or purchasing from American
1:50:09PM Express the same thing, right?

1:50:16PM **A.** That -- you -- yes.

1:50:18PM **Q.** Okay. And some of those customers of American Express are
1:50:25PM businesses, right?

1:50:27PM **A.** Yes.

1:50:28PM **Q.** And they may be in a wide variety of businesses that don't
1:50:32PM actually compete with one another, correct?

1:50:36PM **A.** Yes.

1:50:37PM **Q.** You can have a restaurant or a hotel or a bowling alley,
1:50:41PM right?

1:50:42PM

A. Right.

1:50:44PM

Q. Now, let's take that into the world of the App Store.

1:50:48PM

You claim that Dr. Evans' market is properly defined as a

1:50:58PM

cluster market -- well, I should say you say it --

1:51:00PM

A. Would not be --

1:51:00PM

Q. -- should be described as a cluster market, but that it is

1:51:03PM

not, in fact, properly a cluster market, fair?

1:51:06PM

A. That would be fair.

1:51:08PM

Q. Okay. Tell me, what do you think he is clustering

1:51:11PM

together wrongly?

1:51:13PM

A. He's clustering together apps that are not substitute for

1:51:18PM

one another and that don't face -- so on the cluster side,

1:51:23PM

they don't face the same competitive -- the transactions don't

1:51:28PM

face the same competitive conditions.

1:51:30PM

Q. The apps are not the product here, correct?

1:51:33PM

A. The transactions are the product.

1:51:35PM

Q. The transactions are the product.

1:51:37PM

Which transactions are you talking about? Who are the

1:51:41PM

parties to these transactions?

1:51:43PM

A. Consumers and developers.

1:51:48PM

Q. And what is the specific product that the App Store is

1:51:52PM

providing to these consumers and developers?

1:51:57PM

A. Transactions. Did I miss something?

1:51:59PM

Q. No, the --

1:51:59PM

A. Okay.

1:51:59PM Q. So what type of -- I'll do it this way.

1:52:02PM The App Store is not, for example, selling coffee, right?

1:52:09PM A. No, I don't think so.

1:52:10PM Q. Okay. And I promised no banana, but I can't resist.

1:52:13PM The app store is not selling Agent Peely costumes, right?

1:52:18PM A. I agree with that.

1:52:19PM Q. Okay. What the App Store is selling is it's selling

1:52:24PM transaction services both to the Starbucks app and to users at

1:52:28PM the same time, correct?

1:52:29PM A. Correct.

1:52:30PM Q. And the transaction services that it provides are things

1:52:33PM like search and discovery, marketing promotion, and so forth;

1:52:38PM is that fair?

1:52:39PM A. That would be fair.

1:52:40PM Q. And the App Store provides those same services to

1:52:44PM Starbucks and to Waze and to *Fortnite* when *Fortnite* was on the

1:52:51PM App Store, correct?

1:52:53PM A. Well, it actually highlights games in a separate tab and

1:52:57PM makes them, you know, more visible to consumers who go in and

1:53:03PM want to purchase games. So it does actually separate out

1:53:07PM different categories and treats them separately.

1:53:10PM Q. Well, it is providing a marketing service, and that is

1:53:12PM just doing a marketing service. It's not a different service

1:53:17PM that it is providing, correct?

1:53:20PM A. Well, they have the game -- have their own manager at

Apple that kind of oversees certain things about games that may be different from what they need to look into for cooking apps, for example.

Q. And at the iron manufacturer, there may be somebody who is responsible for overseeing the relationship with the automobile manufacturers, but that doesn't make it a different market, correct?

A. Well, so in some sense, I think it still matters that the automobile manufacturers, when you look at them as a set of customers for the -- I think you said iron. I don't know if they buy iron. So --

Q. Neither do I.

A. So if you look at these as customers, what are the options that car manufacturers have when it comes to the usage of this product, as opposed to what are the options that the consumers would have if we're talking -- you talked about beams and other things as well.

So it matters that there would be other options that are available to the consumers in defining the market for these different products/usage that customers might make of them.

Q. All right. So your testimony is that in the case of the iron manufacturer, you might define a separate market for automobile purchasers and beam purchasers and furniture purchasers?

A. And I do think that they would tend to have, potentially,

1:55:00PM slightly different products that they are using, as well.

1:55:03PM But, yes, I would need to think about what are the options of
1:55:06PM the consumers that are using this product.

1:55:11PM Q. And in the App Store circumstance, the -- let me go to
1:55:18PM your Staples example.

1:55:20PM A. Mm-hmm.

1:55:20PM Q. In Staples, the product at issue or the products at issue
1:55:26PM were not transaction platforms like with American Express and
1:55:31PM the App Store, right?

1:55:32PM A. They were physical products.

1:55:34PM Q. Right. And there were different actual physical products
1:55:37PM being sold by these office superstores. There were literal
1:55:40PM staples and there were ink and toner, as you said, and other
1:55:48PM things, correct?

1:55:48PM A. That's correct.

1:55:48PM Q. And the reason that it was feasible to divide the market
1:55:52PM there or to come up with separate markets was because there
1:55:55PM were separate products that were being sold. One product was
1:55:59PM a printer, another product was ink, and another product was
1:56:04PM Scotch tape and so forth, correct?

1:56:06PM A. Well, using some of your logic, if I understand it
1:56:09PM correctly, you could also say that --

1:56:11PM Q. I am sorry, Professor. I just asked the question.

1:56:14PM A. Sorry, sorry. I was trying to think through what that
1:56:17PM meant. So please repeat the question.

1:56:20PM Q. Sure. The question was in the Staples matter, there were
1:56:24PM separate products being sold. There was printer, there was
1:56:28PM toner, there was Scotch tape, and so forth.

1:56:30PM A. Yes, I agree to that.

1:56:33PM Q. Okay. And in the App Store case, there are not separate
1:56:36PM products being sold. You said a while ago the product is
1:56:40PM transactions, correct?

1:56:41PM A. The product is transactions.

1:56:43PM Q. And so the two situations are simply not analogous,
1:56:46PM because here we have just one product being sold to a
1:56:50PM heterogeneous set of customers, correct?

1:56:56PM A. To me, game transactions have other competitive
1:57:01PM conditions, and, therefore, that affects how I would define
1:57:08PM the product for that set of transactions -- define the product
1:57:14PM market. Sorry.

1:57:14PM Q. But the product is the same, correct?

1:57:18PM A. It is transactions.

1:57:20PM Q. And then you break it out because you are saying that
1:57:24PM there are different competitive conditions applicable to
1:57:28PM different customers buying the same product; is that correct?

1:57:34PM A. There's -- there are -- yes, there are differences for the
1:57:40PM set of options that these customers have. I'm always starting
1:57:43PM from the product and thinking about what options the customers
1:57:47PM have.

1:57:48PM Q. Okay. And is your games transaction market itself a

1:57:53PM cluster market?

1:57:59PM A. I would argue probably not.

1:58:03PM Q. But there are different competitive conditions that are
1:58:07PM applicable to different games, fair?

1:58:11PM A. Yes. But to -- and Dr. Evans, I think, has suggested, for
1:58:19PM example, that *Fortnite* has more options, for example, than
1:58:24PM other games would have. I don't disagree with that, but I
1:58:29PM think that, as I've said in my report, that one has to think
1:58:35PM about some natural boundaries.

1:58:37PM And so, you know, shoes, women's shoes, we have high
1:58:42PM heels; we have flats. It's -- you know, even though some
1:58:48PM people might not see these different types of games as
1:58:53PM similar. It's also the case that in the aggregate, there is
1:58:56PM substitution between them. And the same thing with different
1:58:59PM types of shoes, and we still treat them as shoes.

1:59:02PM Q. So if I understand the chain of logic, you have started
1:59:07PM with game transactions because Epic is the plaintiff, correct?

1:59:14PM A. Not because Epic is the plaintiff, but because that is the
1:59:18PM type of thing that Apple and Epic interact on. That is the
1:59:24PM product that they interact on.

1:59:26PM Q. Well, and the only reason you are looking at the product
1:59:30PM that they interact on is because Epic is the plaintiff,
1:59:34PM correct?

1:59:34PM A. It is part of what the case, yes, entails.

1:59:37PM Q. Okay. So you start with game transactions because that's

the product that the plaintiff and Apple interact on, correct?

A. Correct.

Q. And you conclude that you shouldn't go any broader than that because there are different competitive conditions, correct?

A. Yes.

Q. Okay. And you also conclude that you shouldn't go any narrower than that, despite the fact that there are different competitive conditions applicable to different types of games, correct?

A. Because there are other factors that one would want to think about. And in figuring out the boundaries of markets, we want to think about the qualitative evidence, including, for example, there is a -- it's a market that is recognized as a separate market. People don't break it into so many pieces. There are trade associations, there's different types of ways in which people recognize in the public that there's a game market, a game transaction market.

Q. It's just an intuitive and natural grouping, in your view.

A. It is.

Q. So the rule about competitive conditions doesn't apply when you find a natural and intuitive grouping; is that how I should understand the approach here?

A. There are limitations in -- we want to be looking at what people substitute between. And that means that we can't --

2:01:20PM I'm trying to best answer your question.

2:01:25PM It is -- there's a combination of qualitative/quantitative
2:01:28PM evidence that we use to define the market, and there will be
2:01:33PM some breaks in how we think about substitution across
2:01:38PM different types of products.

2:01:40PM And, again, if you think about -- so products are
2:01:45PM differentiated. So if you think about shoes again, high heels
2:01:50PM and flats can be substitute for each other. Some people will
2:01:54PM buy only one kind; some other people won't. And if you do
2:01:58PM a -- you can do a demand estimation and find out what are the
2:02:02PM substitution patterns between those products.

2:02:09PM **Q.** So I don't know if the answer to my question was yes or
2:02:12PM no, Professor, so I will try it again.

2:02:14PM The chain of logic here is that you have a -- you start
2:02:20PM with competitive conditions being different, and so you,
2:02:22PM therefore, stick with game transactions. But then you don't
2:02:27PM consider the different competitive conditions that are
2:02:29PM applicable to individual games because you find that to be a
2:02:32PM natural and intuitive grouping.

2:02:35PM Is that a fair summary?

2:02:37PM **A.** So I will -- so what I said is that a market definition
2:02:41PM includes -- involves finding the products that are substitutes
2:02:45PM for each other. If they are not substitutes for each other,
2:02:49PM then you go to clustering.

2:02:50PM **Q.** Okay. And the -- but the product here, I thought we

2:02:53PM agreed, was the transactions.

2:02:55PM **A.** Yes.

2:02:55PM **Q.** And the transactions are the same across all apps,
2:03:00PM correct?

2:03:02PM **A.** The transactions are actually not exactly the same. The
2:03:09PM monetization of different apps are different. There's
2:03:14PM different ways in which people interact with transaction
2:03:17PM platforms where they can engage in these. So I see that as
2:03:22PM differences in these things. But --

2:03:22PM **Q.** So do I understand now correctly that the way you reach
2:03:29PM the point of saying that the product here is game transactions
2:03:33PM is because the transaction services provided to game apps are
2:03:36PM different from the transaction services provided to other
2:03:41PM kinds of apps?

2:03:44PM **A.** I mentioned that earlier, that there is a difference in
2:03:46PM the way that the --

2:03:47PM **Q.** I apologize. Is that the basis on which you've reached
2:03:51PM your product market definition here?

2:03:53PM **A.** I am sorry, I'm going to have to ask you to repeat that
2:03:56PM question, because that is very specific. You want a "yes" or
2:03:58PM "no" answer.

2:03:59PM **Q.** Sure. Is -- are you now testifying that there are
2:04:03PM differences in the transaction services provided to games as
2:04:08PM compared to the transaction services provided to other kinds
2:04:10PM of apps that form the basis of your conclusion as to the

proper product market definition here?

A. So there are similar services and there are additional different services. Yes, I would argue that.

Q. And is that the basis on which you are defining a games transaction market and excluding other transactions?

A. No. I used a lot of different kind of evidence to define the game transaction market.

Q. Okay. And if there were a plaintiff who had a variety of different kinds of apps, you would not necessarily reach the same result in terms of your product market definition, correct?

A. So I would have to look at what are the different types of transactions -- app transactions that they engage in and --

Q. So you --

A. -- create potentially different markets based on those.

Q. All right. And when you formed your opinion in this case, you were not aware of all of the different kinds of apps that Epic develops, correct?

A. I was not fully aware, you're correct.

Q. You did not have a list of the different types of apps, correct?

A. That's correct.

Q. And you did not ask for such a list, correct?

A. Correct.

Q. And you did not ask if Epic had any nongame apps, correct?

2:05:54PM A. Well, I was aware of the *Unreal Engine* --

2:05:59PM Q. Okay.

2:05:59PM A. -- correct.

2:06:01PM Q. And when you formed your opinion, you did not know that

2:06:04PM Epic was the developer of the *Houseparty* app, correct?

2:06:07PM A. That's correct.

2:06:08PM Q. And you hadn't actually heard of *Houseparty* at the time of

2:06:12PM your deposition, correct?

2:06:13PM A. That's correct.

2:06:13PM Q. Although *Houseparty* is mentioned in the Court's

2:06:16PM preliminary injunction order, isn't it?

2:06:19PM A. I may have missed that. Sorry.

2:06:21PM Q. You did review the preliminary injunction order, did you

2:06:23PM not?

2:06:24PM A. I did.

2:06:25PM Q. And I guess you didn't ask what it was and nobody

2:06:28PM mentioned it to you.

2:06:30PM A. I -- yes, I'll agree with that.

2:06:34PM Q. And you know now what *Houseparty* is, right?

2:06:37PM A. Vaguely, yes.

2:06:39PM Q. It is a social networking app with a video chat?

2:06:42PM A. Right.

2:06:43PM Q. And do you know that it is listed in the "Social

2:06:45PM Networking" category on the App Store?

2:06:48PM A. I have not looked for that.

2:06:51PM Q. And had you known that Epic was the developer of a social
2:06:58PM networking app, that's something that you would have
2:07:01PM incorporated in the process of coming up with your market
2:07:04PM definition, correct?

2:07:05PM A. I would have considered what it was and what it means,
2:07:10PM yes.

2:07:12PM Q. And you said you knew about the *Unreal Engine*-related apps
2:07:18PM that are on the App Store, correct?

2:07:21PM A. No, I said I knew about *Unreal Engine* itself.

2:07:24PM Q. Okay. Are you not aware that there are *Unreal*
2:07:26PM *Engine*-related apps that are on the App Store?

2:07:29PM A. I am aware of that as well.

2:07:30PM Q. Okay.

2:07:30PM A. I was just clarifying what I said earlier.

2:07:34PM Q. Thank you.

2:07:34PM Were you aware of that when you formed your opinion in
2:07:36PM this case?

2:07:37PM A. I was aware that there are -- that *Unreal Engine* is used
2:07:42PM to develop apps. My understanding is that a lot of those
2:07:46PM would also be games.

2:07:48PM Q. Okay. Slightly different question I'm trying to ask. I'm
2:07:51PM sure the miscommunication is mine.

2:07:54PM Are you aware that there are Epic-developed *Unreal Engine*
2:08:02PM apps that Epic makes available to developers on the App Store
2:08:08PM for the developers to use in designing their own products?

2:08:15PM A. Please say that again. I am sorry.

2:08:18PM Q. Sure. The question is whether you're aware that Epic
2:08:21PM develops apps that are associated with the *Unreal Engine* that
2:08:25PM go onto the App Store that are targeted for developers to use
2:08:31PM in the developer's own work on their products. They are tools
2:08:36PM for developers.

2:08:36PM A. That's the way I understood what *Unreal Engine*
2:08:38PM fundamentally is.

2:08:42PM Q. Okay. And did you understand that there were apps for
2:08:44PM that purpose that are on the App Store?

2:08:48PM A. I didn't inquire about that specifically.

2:08:51PM Q. So you didn't take that into account either in developing
2:08:55PM your market definition in this case.

2:09:01PM A. So, again, if -- so --

2:09:05PM Q. Sorry, Professor. Did you take it into account in
2:09:08PM developing your market definition opinion in this case or not?

2:09:17PM A. My -- I don't know how to answer that question in part. I
2:09:24PM guess I'll say no.

2:09:27PM Q. But you weren't --

2:09:27PM A. That would be closest.

2:09:28PM Q. You weren't aware of the apps, so you couldn't have taken
2:09:30PM them into account --

2:09:32PM A. I was --

2:09:32PM Q. -- isn't that fair?

2:09:32PM A. Again, I was aware of *Unreal Engine* itself, and so I knew

2:09:37PM that that was being used by developers. So I still, you know,
2:09:42PM also heard a lot about *Fortnite* and other games that Epic has,
2:09:46PM and so that was what I knew about -- yeah.

2:09:53PM Q. Okay. Speaking of games, you don't provide a definition
2:09:56PM of "game" in your testimony or any of your reports, correct?

2:10:00PM A. No, I do not.

2:10:01PM Q. Okay. You had some discussion with Ms. Dunn about the
2:10:10PM difference between a hypothetical monopolist test and the
2:10:13PM SSNIP test.

2:10:13PM Do you recall that?

2:10:15PM A. I do.

2:10:15PM Q. And you said that you had not done a SSNIP test in this
2:10:19PM matter, correct?

2:10:19PM A. That's correct.

2:10:22PM Q. You also did not do a hypothetical monopoly test either,
2:10:26PM correct?

2:10:30PM A. I think the correct answer to that would be that,
2:10:33PM conceptually, thinking about what that would mean, I was not
2:10:45PM worried that the market would be too narrow, is, I guess, the
2:10:50PM main thing that I -- I didn't do an actual test, so I'm just
2:10:55PM trying to answer your question but without -- so I would say I
2:11:02PM did not.

2:11:03PM Q. Okay. I think you answered it. You did not do a
2:11:06PM hypothetical monopoly test -- monopolist test in this case,
2:11:10PM correct?

2:11:11PM **A.** Well, again, you know, I considered whether the market
2:11:14PM definition encompassed what I thought -- conceptually, I
2:11:25PM thought about what that might mean. But it -- I didn't do any
2:11:30PM quantitative test.

2:11:31PM **Q.** Well, again, I'm not asking about quantitative test. I
2:11:36PM tried to stay away from that by not asking about the SSNIP.

2:11:36PM You also did not do a conceptual hypothetical monopoly
2:11:42PM test, correct?

2:11:43PM **A.** The boundary between doing one of those in your head and
2:11:47PM kind of thinking through it and not is a little bit fuzzy to
2:11:50PM me, so I have difficulty being very -- so I had -- again, I'll
2:11:59PM just say no. I think it's a simpler way to answer your
2:12:04PM question.

2:12:07PM **Q.** I'm not looking for any particular answer; I just want to
2:12:10PM understand what you did and didn't do, Professor.

2:12:16PM You did --

2:12:19PM **THE COURT:** Can I ask, who came -- whose definition
2:12:22PM came first, yours or Hitt's or Hanssens?

2:12:26PM **THE WITNESS:** Definition of the market? Is that
2:12:29PM what --

2:12:30PM **THE COURT:** Yes.

2:12:34PM **THE WITNESS:** I would say not Hanssens. We had some
2:12:41PM discussions, and I think we arrived, Hitt and Schmalensee and
2:12:48PM I, working together, to that definition, I would say.

2:12:55PM **THE COURT:** All right. Thank you.

MR. BORNSTEIN: May I proceed?

THE COURT: You may.

MR. BORNSTEIN: Thank you.

BY MR. BORNSTEIN:

Q. You said a little while ago in response to one of my questions, if I recall, that you think it is appropriate to define a market in intuitive and natural groupings, correct?

A. Yes.

Q. And the grouping that you have come up with here is a market that includes transactions on game consoles, but only if they are digital transactions on game consoles that excludes retail games purchased for a game console and excludes digital transactions on a game console if they are not games.

Is that fair?

MS. DUNN: Objection to form.

THE COURT: Overruled.

THE WITNESS: Sorry, I didn't hear the -- do I answer?

THE COURT: Yes.

THE WITNESS: Thank you.

Could you repeat the question?

BY MR. BORNSTEIN:

Q. Maybe.

The market that you've come up with that you say is

2:14:02PM intuitive and natural here is a market that includes
2:14:07PM transactions on a game console, but only if they are digital
2:14:11PM transactions, but not digital transactions for something other
2:14:15PM than games, and excluding retail transactions for products to
2:14:22PM be used with game consoles, like disks; is that correct?

2:14:26PM **A.** Okay. So I -- yes in terms of the definition of the
2:14:34PM market that I used.

2:14:35PM **Q.** And you consider that to be an intuitive and natural
2:14:38PM grouping.

2:14:38PM **A.** I explained in my report that it was my understanding
2:14:44PM that, given that this is a two-sided transaction platform,
2:14:49PM the -- not necessarily based on economics, but from a legal
2:14:53PM perspective, it would be considered appropriate to restrict it
2:14:59PM to other two-sided transaction platforms.

2:15:02PM I also explained if we include these others, it just means
2:15:06PM that the Apple market share would be lower.

2:15:09PM **Q.** So two questions from that.

2:15:10PM First of all, Professor, just do you consider that to be
2:15:13PM an intuitive and natural grouping? That was my question.

2:15:16PM **A.** Oh, I didn't understand that.

2:15:17PM I do consider this to be an intuitive grouping, given
2:15:23PM where these transactions can occur.

2:15:25PM **Q.** And yet you just testified that the reason you came to
2:15:28PM this grouping was, in part, because of your understanding of
2:15:31PM the law; is that correct?

2:15:32PM A. I did mention in my report that because of what I
2:15:38PM understood the law would require, I restricted it further than
2:15:43PM what I might have done from an economic perspective.

2:15:48PM Q. And you landed on something that you think to be intuitive
2:15:51PM and natural, but that you landed on only because of your
2:15:55PM understanding of legal restrictions and you otherwise would
2:15:58PM have landed somewhere else as intuitive and natural, correct?

2:16:03PM A. I might well have included more of the direct
2:16:06PM distribution, yes.

2:16:08PM Q. Now, you've not seen data, Professor, about --

2:16:11PM MR. BORNSTEIN: I'm going to withdraw that question,
2:16:20PM Your Honor.

2:16:20PM THE COURT: Okay.

2:16:22PM BY MR. BORNSTEIN:

2:16:26PM Q. You're aware that there are certain iOS games that are
2:16:31PM not available on consoles; is that right?

2:16:34PM A. Yes, I'm sure.

2:16:36PM Q. And you've not done any kind of analysis of how many of
2:16:39PM the popular iOS games are or are not available on consoles?

2:16:46PM A. I have not.

2:16:47PM Q. Okay. And aside from *Fortnite* and *Minecraft* and *Roblox*,
2:16:53PM which I believe you mentioned in your deposition, you're not
2:16:57PM aware whether or not any other iOS games are available on
2:17:01PM gaming consoles; is that correct?

2:17:03PM A. As I said, I didn't do that analysis.

2:17:05PM Q. Okay. In your written testimony to the Court, you say in
2:17:14PM paragraph 48 that "Apple doesn't prevent developers from
2:17:18PM steering consumers to other platforms by charging less on
2:17:23PM these platforms and more on the App Store."

2:17:26PM Is that at least a close enough summary of your testimony?

2:17:31PM A. My testimony -- I believe -- sorry, I'm having difficulty
2:17:38PM with the microphone here. I got stuck. So the -- could you
2:17:46PM repeat --

2:17:47PM Q. Sure.

2:17:48PM A. -- or point me to a particular section? Is that something
2:17:51PM you want to do?

2:17:52PM Q. If you have it in front of you, that's fine. I'm looking
2:17:55PM at paragraph 48.

2:17:57PM A. Of my rebuttal report?

2:17:59PM Q. No, no, no, your written direct testimony to the Court
2:18:07PM dated May 3rd -- well, no, trial date May 3rd. It doesn't
2:18:11PM seem to have a date on it. Maybe if I look at your signature.

2:18:15PM Do you have it, though?

2:18:16PM A. Yes, I have it.

2:18:17PM Q. Okay. You have paragraph 48?

2:18:20PM A. Yes, I have that.

2:18:21PM Q. All right. And in paragraph 48, you say in the second
2:18:25PM sentence, "Nothing in Apple's license restricts developers
2:18:29PM from offering transactions on other platforms or steering
2:18:32PM consumers to other platforms by charging less on these

platforms or more on the App Store."

I read that correctly?

A. You read that correctly.

Q. All right.

A. So what -- but "steering" is in quotes.

Q. Thank you for the clarification. "Steering" is indeed in quotes.

You are aware that while developers can price differently on the App Store and other platforms, Apple does not allow developers to tell users in the app that they have done so, correct?

A. That is correct.

Q. And Apple does not allow developers to provide any kind of link in their iOS app to other platforms on which transactions can be had.

A. That's my understanding.

Q. And Apple does not allow targeted communications like email to inform people of that either, correct?

A. You have the word "targeted" in there, so yes. Targeted to iOS users, right.

Q. You mentioned Dr. Hanssens and you relied on his survey, in part, for your opinions in this case, correct?

A. That's correct.

Q. And in forming your opinions, you have the understanding that Professor Hanssens survey was intended to address

2:19:55PM

consumers' access to and ownership of devices that support

2:20:02PM

game transactions; is that accurate?

2:20:05PM

A. Yes.

2:20:06PM

Q. And are you aware that -- well, there is nothing in the

2:20:12PM

survey that actually asks about ownership; isn't that right?

2:20:17PM

A. That's not my recollection.

2:20:19PM

Q. The survey asks whether consumers have just regularly used

2:20:24PM

a device in the last 12 months, without regard to ownership;

2:20:28PM

isn't that correct?

2:20:30PM

A. That is correct.

2:20:30PM

Q. And Professor Hanssens, in fact, has expressly disclaimed

2:20:35PM

any intention to ask about ownership, correct?

2:20:38PM

A. I don't know. I don't recall that part.

2:20:40PM

Q. Okay. You identify in your games transaction market three

2:20:50PM

different types of transactions: In-app purchases, downloads,

2:20:55PM

and updates; is that accurate?

2:20:58PM

A. That's correct.

2:20:59PM

Q. Now, only one of those three types of transactions can

2:21:04PM

actually be done on a different device; isn't that accurate?

2:21:11PM

A. So my understanding is that it's actually possible to

2:21:14PM

download an app on a different device from one's phone. But I

2:21:22PM

am not well-versed in this.

2:21:25PM

Q. So if I want to watch Netflix, I can sign into Netflix on

2:21:32PM

my PC, right?

2:21:34PM

A. Maybe. I've never tried, so -- yeah.

2:21:35PM Q. Okay. I've done it, but I'm not here to testify.

2:21:37PM And -- assume with me it can happen.

2:21:41PM A. Yes.

2:21:41PM Q. And then if I want to watch Netflix on my iPhone, though,
2:21:45PM I actually have to download the Netflix app onto my iPhone,
2:21:47PM correct?

2:21:51PM A. I believe that's right.

2:21:52PM Q. I can't substitute a download on one device for a download
2:21:59PM on the iPhone, correct?

2:22:01PM A. Since my deposition, I've heard that it's possible to
2:22:06PM download certain apps from your phone to a different device,
2:22:10PM but --

2:22:10PM Q. I deliberately asked it the other way around, Professor.

2:22:14PM A. Yeah, okay. So then you're right.

2:22:15PM Q. The only way to download an app onto the iPhone is on
2:22:19PM the iPhone; isn't that right?

2:22:20PM A. That is right.

2:22:21PM Q. There is no substitution possibility whatsoever for that
2:22:25PM kind of transaction in your market, correct?

2:22:28PM A. It has to be done on the phone. That's what you mean,
2:22:31PM yes.

2:22:32PM Q. Yes. And the same thing is true if you want to update the
2:22:35PM app. You have to go through the app store to update an app on
2:22:38PM the iPhone.

2:22:41PM A. That's correct.

2:22:41PM

Q. And those are transactions within the meaning of your market definition, correct?

2:22:45PM

2:22:46PM

A. They are.

2:22:47PM

Q. And there is literally no competition for those transactions other than to have them on the iPhone, correct?

2:22:50PM

2:22:55PM

A. That's correct. That's taken into account in the way that market shares have been calculated.

2:23:00PM

2:23:02PM

Q. And you also consider it to be an intuitive and natural grouping to put in-app purchases together in the same market with downloads and updates; is that accurate?

2:23:07PM

2:23:12PM

2:23:16PM

A. Yes, because they contribute to satisfying the consumer need, which is the capacity to play games.

2:23:18PM

2:23:30PM

Q. I want to talk about substitution for a little bit.

2:23:34PM

For products to be in the same market, I think you said earlier there have to be substitutes, or reasonable substitutes, good substitutes, for one another; is that right?

2:23:39PM

2:23:43PM

2:23:45PM

A. That's right.

2:23:45PM

Q. And you view that from the perspective of the customers of the product.

2:23:48PM

2:23:49PM

A. Yes.

2:23:50PM

Q. And one of the substitutes that you believe is a good substitute for making a game transaction on your iPhone is to make a game transaction on a console that belongs to a friend, correct?

2:23:54PM

2:24:02PM

2:24:07PM

2:24:09PM

A. I -- yes, it can be.

2:24:11PM Q. So if I'm commuting to work, which I used to do before the
2:24:15PM pandemic, and I want to buy a cool skin on *Fortnite*, or I want
2:24:23PM to subscribe to *The New York Times* or boost my dating profile
2:24:27PM if I had such a thing, one thing I can do is while I'm on the
2:24:31PM train, I can just transact in the app on my phone, correct?

2:24:38PM A. Yes.

2:24:39PM Q. And an alternative is that after work, I could arrange to
2:24:44PM go over to a friend's house and use her PC or game console.

2:24:48PM That's what you consider to be a good substitute to my
2:24:51PM engaging in the transaction right there on the train; is that
2:24:55PM correct?

2:24:55PM A. Well, for many of the ones you've just mentioned, I think
2:24:59PM you could engage on the -- with -- you could engage in these
2:25:01PM transactions on the websites of the companies directly on your
2:25:05PM phone as well.

2:25:06PM Q. Okay. That wasn't my question.

2:25:10PM A. Sorry.

2:25:10PM Q. My question was whether or not you consider it to be a
2:25:13PM good substitute for me to wait until after work and go to my
2:25:16PM friend's house and use her PC or console.

2:25:24PM A. In some situations, it's going to be something that people
2:25:27PM do.

2:25:28PM Q. And you think that a meaningful number of people would do
2:25:32PM that in response to a 5 or 10 percent price increase in the
2:25:36PM commission rate on transactions; is that your testimony?

2:25:40PM **A.** You're using a specific example that is less likely to
2:25:44PM occur, but there are others where people are playing together
2:25:48PM on a console and they might well engage in transactions during
2:25:53PM that time.

2:25:54PM So there's -- people play games together, as well, and so
2:25:59PM those are options that are available to them and can be good
2:26:05PM substitutes under certain circumstances.

2:26:07PM **Q.** Again, you've now answered about some other set of
2:26:10PM transactions.

2:26:11PM **A.** Yes.

2:26:12PM **Q.** Do you consider the ones that I talked about good
2:26:15PM substitutes or not?

2:26:16PM **A.** I don't consider the ones you talked about to be great. I
2:26:19PM don't disagree with that.

2:26:21PM **Q.** In your expert rebuttal report, you noted that --

2:26:26PM **MR. BORNSTEIN:** I'm going to withdraw that one as
2:26:31PM well, Your Honor. Save a little time.

2:26:39PM **BY MR. BORNSTEIN:**

2:26:39PM **Q.** So we talked a little about the foremarket and the
2:26:42PM aftermarket with Ms. Dunn earlier, correct? And I realize
2:26:47PM that you don't think it is the right framework to analyze
2:26:51PM these things here but let me just ask a conceptual question.

2:26:55PM Do you agree that there are circumstances in which there
2:26:59PM can be competition concerns that arise in an aftermarket?

2:27:04PM **A.** Yes.

2:27:05PM Q. And one of the conditions that you say in your testimony
2:27:10PM needs to apply is that locked-in customers are surprised by
2:27:16PM unexpected changes in the aftermarket terms; is that correct?
2:27:22PM A. That's correct.
2:27:22PM Q. And in the context of the two-sided platform like the App
2:27:26PM Store, the customers, as you said earlier, are the developers
2:27:30PM and the users.
2:27:31PM A. That's correct.
2:27:31PM Q. So the developers are part of the customers.
2:27:34PM And you are aware that when Mr. Jobs, Apple, announced the
2:27:40PM App Store in 2008, he told the world that he intended to run
2:27:43PM it -- or the company intended to run it on a break-even basis,
2:27:48PM correct?
2:27:49PM A. I have heard that that was -- yes.
2:27:51PM Q. And he did that, very logically, because he anticipated
2:27:55PM that having lots of apps would make the iPhone more attractive
2:27:59PM and help Apple sell devices, right?
2:28:04PM A. I don't know what was on his mind, but this makes sense.
2:28:08PM Q. Okay. That is a fair clarification.
2:28:09PM And as it turned out, though, Apple has not run the App
2:28:14PM Store on a break-even basis, correct?
2:28:18PM A. That is --
2:28:19PM Q. And the --
2:28:19PM A. Yes. We don't have the clear profitability analysis, but
2:28:24PM I will give you that.

2:28:26PM Q. Right. There's a lot of dispute perhaps about the precise
2:28:29PM extent of the profit here, but can we at least agree that
2:28:33PM Apple makes a lot of money off of the App Store?

2:28:38PM A. I'll grant you that it's been a profitable business.

2:28:40PM Q. Okay. And that money comes from the developers, correct?

2:28:46PM A. Well, it's a two-sided transaction platform, so what side
2:28:55PM pays is a design issue that -- you know, the goal is to
2:29:01PM attract as many consumers as possible. There is more benefit
2:29:05PM this way for the developers, so I hesitate to pin it down on a
2:29:10PM particular side of the market.

2:29:14PM Q. Well, I'll do it this way: The money comes, at least
2:29:18PM directly, from the developers; is that fair?

2:29:20PM A. I think that that is fair.

2:29:22PM Q. And the developers may pass on some portion of those costs
2:29:26PM to their consumers, to the users, right?

2:29:30PM A. That is right.

2:29:30PM Q. Okay. You agree that most consumers have an iOS or an
2:29:40PM Android device, but not both at the same time, right?

2:29:44PM A. Yes, I agree.

2:29:45PM Q. And it is your view that you don't see a universe where
2:29:53PM more than a quarter of iOS users switch to Android every
2:29:57PM year, correct?

2:29:59PM A. I don't know about the universe. I don't remember talking
2:30:03PM about universes.

2:30:04PM Q. Did you testify at deposition that you don't see a

2:30:08PM universe where more than a quarter of iOS users switch over

2:30:13PM to Android every year?

2:30:16PM A. As I stand here right now, I don't remember saying that,

2:30:19PM but it's possible that I did.

2:30:23PM Q. Okay. And I'll just ask you right now while you are here.

2:30:26PM A. Okay.

2:30:26PM Q. Do you see a universe in which a quarter of iOS users

2:30:31PM switch over to Android every year?

2:30:34PM A. It would have to be the case that the technology is

2:30:36PM deteriorating rapidly.

2:30:41PM Q. And right now, you have no reason to believe that that is

2:30:42PM actually what's happening --

2:30:45PM A. Correct.

2:30:45PM Q. -- correct? I'm sorry, I'm not sure if the court reporter

2:30:47PM got your answer.

2:30:47PM A. Sorry. I said correct.

2:30:47PM Q. Thank you.

2:30:47PM A. I keep banging into this.

2:30:51PM Q. Now, is it the case that for a game like *Fortnite*, users

2:30:57PM have preferences as to which device they place on?

2:31:02PM A. I would -- yes, of course.

2:31:03PM Q. And it's your understanding that people who have a console

2:31:06PM spend as much time as they can on that console, rather than

2:31:12PM playing on a smartphone, at least when it was available.

2:31:17PM A. I would assume that that -- that they might -- again, I

2:31:25PM don't know -- you know, I'm not in their heads, but consumers

2:31:32PM may make that choice, yes.

2:31:34PM Q. Okay. And you gave testimony at deposition --

2:31:36PM A. Yes.

2:31:36PM Q. -- to that effect, did you not?

2:31:38PM A. Yes.

2:31:39PM Q. Okay. And you agree also that multihoming is not, on its

2:31:43PM own, evidence of switching, correct?

2:31:48PM A. The two are not exactly the same, you're right.

2:31:51PM Q. So --

2:31:51PM A. I am not sure what you mean by "switching" in that

2:31:54PM context.

2:31:55PM Q. Well, that one was an effort to be a quote from your

2:31:59PM testimony, Professor.

2:32:00PM A. That's fine. I'm just trying to be clear what you mean.

2:32:03PM Q. Very good. I would like you to be clear. I'll ask you to

2:32:05PM take a look at paragraph 39 --

2:32:08PM A. Okay.

2:32:08PM Q. -- of your direct testimony, and it's four lines from the

2:32:15PM bottom of that paragraph.

2:32:26PM A. Right. So I just wanted to be clear that we are talking

2:32:29PM about actual switching devices, and, yes, that is what this

2:32:34PM says.

2:32:35PM Q. Very good.

2:32:35PM And for there to be actual multihoming under the

2:32:38PM literature, there needs to be real use on both devices or
2:32:41PM multiple devices, right? Ownership or access is not enough,
2:32:45PM correct?

2:32:46PM A. Multihoming implies that people are using both devices.

2:32:52PM Q. Turn to one last topic, Professor.

2:32:55PM You've defined a geographic market that involves U.S.
2:33:04PM consumers on the one hand and developers globally on the
2:33:08PM other; is that right?

2:33:09PM A. That's correct.

2:33:10PM Q. And one basis on which you reach that conclusion is,
2:33:13PM again, your understanding of the law and what the U.S.
2:33:17PM antitrust laws are intended to achieve; is that correct?

2:33:22PM A. While I was at the FTC, the criteria that we used was --

2:33:25PM Q. Apologies.

2:33:25PM A. -- consumer welfare in the U.S., yes.

2:33:29PM Q. You asked -- you reached that conclusion, in part, based
2:33:31PM on your understanding of the law; is that correct?

2:33:35PM A. I would say based on my experience at the FTC.

2:33:41PM Q. And at the FTC, you served as an economist, correct?

2:33:45PM A. Yes, yes.

2:33:45PM Q. Okay.

2:33:45PM A. I am not a lawyer.

2:33:47PM Q. Very good.

2:33:47PM And you also formed your view on the geographic market
2:33:56PM definition, in part, on the basis that developers have to

2:34:01PM compete for U.S. consumers on U.S. storefronts; is that right?

2:34:07PM A. Yes.

2:34:08PM Q. And U.S. consumers are unable to go to storefronts in

2:34:12PM other countries, as you understand it, or it is difficult for

2:34:15PM them to do so; is that correct?

2:34:17PM A. That's correct.

2:34:17PM Q. But you didn't take account at all of direct distribution

2:34:21PM in defining your geographic market; am I right?

2:34:25PM A. Direct distribution by developers.

2:34:29PM Q. Correct.

2:34:33PM A. I'm not sure I fully follow, so if you could help me with

2:34:38PM what you mean by --

2:34:39PM Q. Well --

2:34:39PM A. -- taking that -- I'm not understanding.

2:34:42PM Q. Sure. I'm a U.S. consumer, and I can go on my PC now and

2:34:50PM download anything I want from a developer overseas, right?

2:34:54PM A. Perhaps. I've never tried, so I don't know.

2:35:00PM Q. Well, you understand there's direct distribution on the

2:35:03PM PC, correct?

2:35:04PM A. Yes.

2:35:04PM Q. And it's not limited to -- by national boundaries, right?

2:35:12PM A. I actually don't know about that.

2:35:14PM Q. Right. You don't know one way or the other.

2:35:17PM A. Right.

2:35:17PM Q. And so you did not take that into account --

2:35:20PM A. That's correct.

2:35:20PM Q. -- in reaching your geographic market definition.

2:35:27PM A. That's correct.

2:35:27PM Q. Very good.

2:35:27PM MR. BORNSTEIN: Nothing else. Thank you for your
2:35:29PM time, Professor.

2:35:30PM THE WITNESS: Thank you.

2:35:30PM THE COURT: Redirect.

2:35:33PM MS. DUNN: No redirect, Your Honor.

2:35:34PM THE COURT: Okay. Professor, you may step down.
2:35:35PM You're excused. Thank you.

2:35:36PM Next witness. Who do we have next?

2:35:59PM MR. DOREN: Professor Lorin Hitt, Your Honor.

2:35:59PM THE COURT: We are waiting for Professor Hitt. Thank
2:36:06PM you, Mr. Doren.

2:36:15PM While we are waiting, having reviewed once your
2:36:19PM conclusions of law, your briefing, your hundreds and thousands
2:36:24PM of pages, I take it there is no definitive authority as to the
2:36:29PM precise framework or the precise mechanism by which the Court
2:36:35PM defines the market other than considerations. That is why you
2:36:40PM all are spending so much time on this.

2:36:42PM Kind of like -- it reminds me of qualified immunity. Lots
2:36:48PM of things that we need to think about. One side says it is
2:36:51PM usually black, the other side says it is white; typically, the
2:36:55PM answer is somewhere in the gray, for an analogy.

2:36:59PM But it's -- I haven't seen any Ninth Circuit or Supreme
2:37:03PM Court authority that says this is the precise way in which you
2:37:08PM define the market, and that's why you all are spending so much
2:37:12PM time on this.

2:37:13PM Am I right?

2:37:14PM **MR. BORNSTEIN:** Your Honor, I -- this is the first
2:37:17PM time I'm speaking up here with my mask on. Sorry.

2:37:19PM I actually think it is not quite so complicated. I don't
2:37:23PM have our papers in front of me right now, having just gone
2:37:27PM through two examinations, but I do believe there is a pretty
2:37:31PM well-trodden framework for defining the market --

2:37:32PM **THE DEFENDANT:** There are certainly considerations,
2:37:34PM but there -- I haven't seen anything, for instance, that says
2:37:42PM you must look at it from the precise point of view of the
2:37:46PM plaintiff or you must look at it from the precise point of
2:37:50PM view of the product or you must look at it from the precise
2:37:54PM point of view of competition. There are lots of different
2:37:56PM considerations that all go into trying to figure out what the
2:38:00PM relevant market is. If it was clear-cut, you would agree, but
2:38:03PM you don't.

2:38:06PM **MS. DUNN:** Your Honor, in your PI order --

2:38:10PM **THE CLERK:** Let me turn your mic on. I'm sorry.

2:38:20PM **THE COURT:** Go ahead, Mr. Bornstein. You have the
2:38:22PM mic.

2:38:23PM **MR. BORNSTEIN:** Oh, I am sorry, Your Honor.

2:38:24PM I actually do think it is more clear-cut than perhaps it
2:38:28PM appears based on the back-and-forth between the parties. It
2:38:33PM is not always agreed between the parties on how clear-cut
2:38:36PM things are, but my understanding --

2:38:38PM **THE COURT:** What is your best case?

2:38:39PM **MR. BORNSTEIN:** I'm sorry?

2:38:39PM **THE COURT:** What is the case upon which you rely?

2:38:42PM **MR. BORNSTEIN:** Your Honor, as I said, I do not have
2:38:43PM a case right now that I can give you at my fingertips, but I
2:38:47PM can certainly get you one in the next five minutes when I just
2:38:50PM go consult with my colleagues.

2:38:50PM **THE COURT:** So you think there is one case?

2:38:52PM **MR. BORNSTEIN:** I do believe there is a pretty
2:38:53PM well-trodden framework. A lot of times what people do is they
2:38:53PM refer to the horizontal merger guidelines from the DOJ and FTC
2:39:00PM that Professor Schmalensee referenced earlier today.

2:39:02PM But the standard framework is to look to see what are the
2:39:07PM substitutes that are available to constrain the conduct at
2:39:12PM issue by the defendant in the case, which requires looking to
2:39:17PM see -- which it requires looking to see what the options are
2:39:26PM to constrain the conduct.

2:39:27PM Ms. Forrest is passing me a note about Brown Shoe, which
2:39:31PM is an old case --

2:39:32PM **THE COURT:** Old, old. Very old.

2:39:33PM **MR. BORNSTEIN:** An oldie but a goody. But the

2:39:36PM framework is very much, in our view, starting with what is the
2:39:39PM conduct at issue in assessing how you can decide what other
2:39:43PM activity constrains the defendant from engaging in that
2:39:47PM conduct.

2:39:48PM **THE COURT:** Right. But if there was a flower market
2:39:49PM down the street that didn't have any presence on an app, then,
2:39:54PM obviously, that -- if they came in arguing some kind of
2:40:00PM antitrust conduct, one would wonder what they were doing here,
2:40:04PM given that they don't have any presence on the app. So --

2:40:09PM **MR. BORNSTEIN:** That is true, Your Honor, but that's
2:40:09PM an antitrust injury question. That is a separate question
2:40:12PM from market definition. In order for a plaintiff to bring a
2:40:15PM case, they need to have both Constitutional Article III
2:40:18PM standing, of course, but also to have antitrust injury.

2:40:20PM I don't think there is any dispute about antitrust injury
2:40:24PM here. Epic has certainly been harmed, but that is not a
2:40:28PM market definition question. And that was the point of one of
2:40:32PM my questions to Professor Schmalensee.

2:40:35PM **THE CLERK:** So can you -- I'm sorry, I'm having a
2:40:37PM problem with this X panel.

2:40:41PM **THE COURT:** All right. Can you go to this --

2:40:41PM **THE CLERK:** You can go to the table or something.

2:40:41PM **THE COURT:** He won't -- Ms. Dunn, he won't bite. Go
2:40:43PM to that mic.

2:40:43PM **MR. BORNSTEIN:** Join me.

2:40:44PM **MS. DUNN:** Gary and I will sit together.

2:40:44PM Mr. Bornstein and I will share the space.

2:40:47PM So in your PI order, Your Honor, you do cite a case -- and

2:40:53PM I will look that up -- where the focus is supposed to be on

2:40:56PM the commercial realities. And so the commercial realities --

2:40:59PM we think you got that right in the PI order -- they relate to

2:41:05PM market definition and, frankly, to relevant market.

2:41:08PM So in order to figure out what is the relevant market, you

2:41:13PM look at, you know, the issues at hand. And I think that is,

2:41:17PM in part, what Dr. Lafontaine was talking about, which is we

2:41:22PM need to figure out what is the product. So --

2:41:25PM **THE COURT:** Do you have a case?

2:41:26PM **MS. DUNN:** We are looking it up.

2:41:30PM **THE COURT:** I've got old Brown Shoe --

2:41:31PM **MS. DUNN:** Yeah.

2:41:31PM **THE COURT:** -- and as we all know, just because it's

2:41:35PM old doesn't make it any less the law, so we know that. But

2:41:41PM Hicks, what is it that you're -- okay.

2:41:46PM **MS. DUNN:** Yeah, so --

2:41:46PM **THE COURT:** You know, we can keep going. I was just

2:41:47PM trying to kill time since we were waiting.

2:41:51PM Let's see. Professor Hitt, is it, or Mr. Hitt?

2:42:08PM **THE REPORTER:** Can you tell me who you are?

2:42:08PM **MS. RICHMAN:** Good afternoon, Your Honor. Cynthia

2:42:23PM Richman for Apple.

2:42:23PM Apple calls Professor Hitt to the stand.

2:42:23PM **THE COURT:** And if you'll remain standing.

2:43:19PM (LORIN MOULTRIE HITT, called as a witness for the
2:43:19PM Defendant, having been duly sworn, testified as follows:)

2:42:58PM **THE WITNESS:** I do.

2:43:00PM **THE CLERK:** Please be seated. Make sure the mic is
2:43:02PM adjusted under the shield. All right?

2:43:05PM Please state your full name and spell your last name.

2:43:08PM **THE WITNESS:** My name is Lorin Moultrie Hitt. Last
2:43:09PM name spelled H-I-T-T.

2:43:16PM **THE COURT:** Good afternoon, sir.

2:43:18PM **THE WITNESS:** Good afternoon.

2:43:18PM **THE COURT:** You may proceed, Ms. Richman.

2:43:21PM **MS. RICHMAN:** Thank you, Your Honor.

2:43:22PM Good afternoon, Professor Hitt.

2:43:25PM Before we get started, I would like to approach the
2:43:28PM witness with a bottle of water and a binder with his written
2:43:32PM Direct testimony in it.

2:43:34PM **THE COURT:** That's fine.

2:44:00PM **DIRECT EXAMINATION**

2:44:02PM **BY MS. RICHMAN:**

2:44:02PM **Q.** Well, Professor Hitt, your ears must have been burning
2:44:02PM this morning, there's been a lot of discussion about you, but
2:44:05PM can you state your name for the record, please?

2:44:07PM **A.** Hi. My name is Lorin Moultrie Hitt.

2:44:12PM Q. And, Professor Hitt, where are you currently employed?

2:44:14PM A. I'm employed at the University of Pennsylvania, Wharton
2:44:15PM School which is the business School that's connected with the
2:44:18PM University of Pennsylvania.

2:44:20PM THE COURT: You'll have to slow down, Mr. Hitt.

2:44:22PM THE WITNESS: Will do.

2:44:22PM THE COURT: Go ahead.

2:44:22PM BY MS. RICHMAN:

2:44:22PM Q. Let me repeat the question.

2:44:37PM Professor Hitt, what's your title at Wharton?

2:44:39PM A. It's the Zhang Jindong Professor of Operations,
2:44:39PM Information, and Decisions.

2:44:43PM Q. And can you please summarize your formal education for the
2:44:47PM Court?

2:44:47PM A. Sure.

2:44:47PM So I got my undergraduate and master's degree in
2:44:50PM electrical engineering from Brown University. Worked for a
2:44:53PM few years, then went back and got my Ph.D. in management from
2:44:57PM the MIT Sloan School of Management.

2:45:00PM My area of specialty was information technology economics
2:45:04PM and applied econometrics and my dissertation title was
2:45:08PM "Economics of Information Technology and Organization."

2:45:11PM Q. And was your dissertation published?

2:45:14PM A. Yes. It was the sort of classic economist three SA
2:45:16PM Dissertation. Two were published in top tier economics

journals. One in the top tier IS Specialty -- Information Systems Specialty Journal.

Q. What is the focus of your current research, Professor Hitt?

A. So, generally, economics of information technology and industries affected by information technology. I've done a lot of work recently and in the past on the economics of electronic commerce and internet-enabled commerce more generally.

Q. Have you done any research on app-related economic issues?

A. Yes. I've done work on the economics of software, in particular pricing of digital goods. I've worked in the area of switching costs. I've worked in the area of recommended systems that are sort of interesting to electronic commerce to the public (phonetic) --

MS. RICHMAN: Are you having trouble?

COURT REPORTER: I am.

THE WITNESS: I'll slow down.

THE COURT: And I think we are going to have to fix this mic issue. If you push it down --

THE CLERK: It bends on the end.

THE WITNESS: Is that better?

THE COURT: I think that's better.

BY MS. RICHMAN:

Q. Professor Hitt, it's okay to brag now.

2:46:27PM Have you received any teaching awards at the University of
2:46:30PM Pennsylvania?

2:46:31PM **A.** Yes. I'm a 12-time winner of the Wharton Excellence in
2:46:34PM Teaching Award, which is annual. I also won the Wharton wide
2:46:38PM Hauck Award and the University wide Lindback Award, which are
2:46:38PM the highest teaching awards in the Wharton School and the
2:46:46PM University of Pennsylvania respectively.

2:46:48PM **Q.** Have you previously presented testimony in a case before a
2:46:52PM federal or state court?

2:46:54PM **A.** Yes.

2:46:55PM **Q.** And what subjects did your prior testimony cover?

2:46:59PM **A.** The -- so one of the cases focused specifically on
2:47:02PM smartphones. And in particular, pricing and the economic
2:47:06PM value of the smartphone features. I've also done work related
2:47:09PM to business practices in the information technology industry
2:47:13PM more generally.

2:47:14PM **Q.** And when you testified previously, were you accepted by
2:47:17PM the courts as an economic expert on those subjects in those
2:47:21PM cases?

2:47:22PM **A.** Yes, I was.

2:47:22PM **MS. RICHMAN:** Your Honor, I would like to tender
2:47:25PM Professor Hitt as an expert in information technology,
2:47:28PM economics, and applied econometrics?

2:47:32PM **THE COURT:** Any objection?

2:47:34PM **MR. EVEN:** No objection.

THE COURT: He's admitted as such.

MS. RICHMAN: Thank you.

BY MS. RICHMAN:

Q. Professor Hitt, did you analyze the competitive effects of the conduct being challenged by Epic in this case?

A. Yes, I did.

Q. What are the indicia of competition that economists typically look at in analyzing whether conduct has pro or anticompetitive effects?

A. So three common ways of looking at the outcome of competitive conduct is to evaluate output, whether the market is growing, shrinking, how much is it expanding, prices, what are people paying, and then innovation and quality, is the product improving over time.

And, in general, in a competitive market, you expect output to expand, prices to be steady or falling, and quality to improve. And with anticompetitive conduct, you expect the opposite.

Q. And broadly speaking, what did you conclude about the competitive effects of the conduct challenged by Epic in this case?

A. There's no evidence to suggest based on those metrics that Apple engaged in anticompetitive conduct.

Q. Professor Hitt, you understand that Epic and Apple are offering different product definitions to the Court; is that

2:48:48PM

correct?

2:48:48PM

A. That's correct.

2:48:51PM

Q. And do your conclusions on competitive effects turn on the

2:48:58PM

relevant market that the Court adopts in this case?

2:49:01PM

A. No. Regardless of whether you use a game transactions

2:49:05PM

market or an all apps market, those indexes of market outcomes

2:49:10PM

are generally consistent. The numbers are different but you

2:49:13PM

still see the same general trends.

2:49:15PM

Q. Okay. Let's talk about how you arrived at that conclusion

2:49:18PM

and let's start by talking about data.

2:49:21PM

Can you describe the type of data you relied on in

2:49:25PM

conducting your analysis?

2:49:27PM

A. Sure.

2:49:27PM

So the primary data source for one of the calculations on

2:49:32PM

output was a dataset of Apple transactions. Is literally

2:49:36PM

every transaction that occurred on the Apple store for

2:49:41PM

downloads in-app purchases from the time the Apple Store

2:49:42PM

opened through the end of 2019? That has about 60 billion

2:49:46PM

transactions in it.

2:49:48PM

In addition, I looked at market research service data as

2:49:52PM

well as public information. It gives you information about

2:49:55PM

the overall market size as well as prices paid. And for some

2:49:58PM

of the analyses in my report, I also looked at transactional

2:50:02PM

data provided by Epic that provided monthly data on *Fortnite*

2:50:07PM

transactions by user for several years at the monthly level.

2:50:14PM That's about 2.8 billion monthly observations.

2:50:17PM Q. And do you know whether Dr. Evans had access to the data?

2:50:24PM A. So I believe -- I believe he did, yes.

2:50:27PM Q. And do you know whether Dr. Evans analyzed these billions
2:50:31PM of observations from the App Store to reach opinions on
2:50:35PM competitive effects?

2:50:36PM A. Dr. Evans didn't really do anything on competitive effects
2:50:41PM with the Apple transactions data. He didn't look at output or
2:50:44PM quality at all using those data.

2:50:47PM He also did not use the full *Fortnite* data for any of his
2:50:50PM analysis. He instead used a 1 percent sample -- less than
2:50:53PM 1 percent sample which is different than the data I used,
2:50:56PM which has all of *Fortnite* spending.

2:50:59PM Q. Thank you.

2:50:59PM If we can go to slide 4. Let's talk about output first.

2:51:04PM Why is output an important measure of competitive effects?

2:51:11PM A. So it's a key measure of the amount of activity occurring
2:51:17PM within a market. And in particular, a hypothesis is that
2:51:19PM monopolies will raise prices and thereby restrict output. So
2:51:24PM expanding output is an indication that would suggest that
2:51:28PM there is not anticompetitive behavior when compared against an
2:51:33PM inappropriate benchmark.

2:51:36PM Q. Are your findings summarized here on slide 4?

2:51:40PM A. Yes, they are.

2:51:42PM Q. How did you go about measuring output?

A. So there's two ways you can measure output in this market. One, you can look at the number of transactions. This is a two-sided transaction platform. So a natural measure of output would be the number of transactions that occur. So that's one metric.

A second metric would be revenue, which is how much -- how much actual -- the volume of commerce that's being conducted which directly relates to the value that consumers and developers are getting for performing these transactions.

Q. Did you use zero price transactions in measuring output?

A. Yes. It's very common in two-sided markets for one side or the other to participate in transactions but not pay a price for that.

This is an important source of value created by the App Store and a critical component of output. So it's important that when you're evaluating output, you incorporate free transactions because that's a key part of what's being delivered.

Q. Let's go through these numbers one by one beginning with game transactions.

First, how did you identify games in the Apple transaction data?

A. So, fortunately, developers self-identify. So I was able to identify game transactions because developers self-identify their products as games.

2:53:08PM Q. Can we have slide 5, please.

2:53:10PM And is your analysis of -- your conclusions about output
2:53:15PM of game transactions reflected in this slide?

2:53:19PM A. Yes, it is.

2:53:19PM Q. And what does it show?

2:53:21PM A. So there's two panels on the side. The left-hand panel
2:53:25PM has transactions. The right-hand panel has revenue. Across
2:53:29PM the bottom is the passage of time. The vertical axis is the
2:53:34PM measure of output.

2:53:35PM So if you look -- this is based on 60 billion data -- 60
2:53:36PM billion transaction dataset reduced down to focus solely on
2:53:43PM game transactions. What you see in the left panel is that the
2:53:46PM number of game transactions has been increasing over time.
2:53:50PM And if you do a calculation over the span of this data, you'll
2:53:52PM find that game transactions have expanded 1200 percent.
2:53:55PM That's 12 times from the inception to current times. And
2:53:58PM that's generally an upward trend.

2:54:01PM If you look at revenue, revenue has expanded even more at
2:54:05PM 2600 percent, and it's got a very steady increasing amount
2:54:08PM from the time the App Store started through the end of the
2:54:11PM period.

2:54:11PM The window for which that calculation is done slightly
2:54:14PM different so it can match different dataset. This is from
2:54:19PM July 2008 to September 2019.

2:54:23PM Q. As an economist, what conclusions do you draw from these

2:54:26PM numbers?

2:54:27PM **A.** So output is expanding rapidly in this market for game
2:54:31PM transactions.

2:54:31PM Just a clarification, the 2600 percent is from 2010 to
2:54:37PM 2018.

2:54:38PM **Q.** And in your experience, are these large increases in the
2:54:43PM amount of output?

2:54:44PM **A.** Yes. These are enormous changes.

2:54:47PM So if you think -- you know, compare the revenue figure.
2:54:49PM A natural comparison would be, for example, the growth in the
2:54:53PM U.S. economy. Over 2010 to 2018, the U.S. economy grew about
2:54:57PM 50 percent. So we're talking about a 50 plus times difference
2:55:01PM in the rate of growth. So this is a very, very rapid growth.

2:55:06PM **Q.** Just make sure we understand.

2:55:08PM These measures just look at output on the App Store; is
2:55:12PM that correct?

2:55:13PM **A.** This is just the App Store.

2:55:14PM **Q.** As an economist, is it important to look at market-wide
2:55:18PM changes in output?

2:55:19PM **A.** Yes. Anticompetitive conduct can affect the market as a
2:55:22PM whole. In addition, it provides a relevant benchmark to
2:55:27PM evaluate these changes relative to the closest analog.

2:55:30PM **Q.** Did you examine output for digital game transactions more
2:55:35PM broadly?

2:55:36PM **A.** I did.

2:55:36PM Q. Can we have slide 6, please.

2:55:38PM Is that what is reflected on the slide?

2:55:41PM A. Yes, it is.

2:55:43PM Q. And can you describe this slide for the Court, please?

2:55:46PM A. Sure.

2:55:47PM So this is based on market research data that estimates
2:55:50PM the total size of the digital games transactions market.

2:55:53PM The data spanned 2010 to 2018. That's the same period
2:55:58PM which I calculated my 2600 percent number. You see a steady
2:56:02PM increase in size of this market where the total growth over
2:56:06PM the period is 448 percent over these nine years.

2:56:10PM Q. And how does that level of growth compare to the level of
2:56:17PM growth for the App Store?

2:56:18PM A. That's pretty fast. But it's nowhere near the speed at
2:56:22PM which the App Store output has been expanding, which is
2:56:24PM 2600 percent, about six -- the App Store has been growing
2:56:28PM about six times as fast as the overall market for game
2:56:33PM transactions.

2:56:34PM Q. So I would like to shift from digital game transactions
2:56:37PM and talk about all iOS transactions.

2:56:40PM Did you analyze changes in output in Dr. Evans' alleged
2:56:47PM market?

2:56:47PM A. Yes.

2:56:49PM Q. And can we have slide 7, please?

2:56:50PM And are your conclusions reflected on this slide?

2:56:56PM A. Yes, they are. This is essentially the same analysis I
2:56:59PM showed a couple of slides back.

2:57:01PM Transactions on the vertical axis, passage of time on the
2:57:05PM horizontal axis, transaction accounts on the left, developer
2:57:08PM revenue on the right. Again, you see by either metric, the
2:57:13PM markets are expanding rapidly. 500 percent growth in
2:57:17PM transactions in all app transactions and 3700 percent in
2:57:21PM revenue.

2:57:22PM Q. Professor, have you been following the testimony in this
2:57:25PM case?

2:57:26PM A. Yes.

2:57:27PM Q. And did you hear Dr. Evans' testimony that Apple obtained
2:57:32PM significant market power in the iOS app distribution market
2:57:36PM in 2010?

2:57:38PM A. Yes.

2:57:39PM Q. And do you have an opinion as to whether Dr. Evans tested
2:57:43PM that claim?

2:57:45PM A. I don't believe he tested that claim, no.

2:57:47PM Q. Have you attempted to test that claim?

2:57:49PM A. Yes. I have examined data that's related to that claim.

2:57:52PM Q. Can we have slide 8, please.

2:57:54PM And does this slide reflect your analysis of Dr. Evan's
2:58:00PM claim?

2:58:02PM A. I think we are one slide ahead.

2:58:07PM Q. Can you flip back?

2:58:09PM **A.** There we go, perfect.

2:58:10PM So this is just the same chart you saw before only zoomed
2:58:14PM into a period that is two years before and two years after the
2:58:18PM end of 2010. Dr. Evans alleges that in 2010, Apple obtained
2:58:22PM market power. That's essentially right in the center of this
2:58:26PM chart.

2:58:26PM As you can see, on the left hand transactions were growing
2:58:31PM before. They continue to grow afterwards. On the right, you
2:58:34PM see revenue growing before. It continues to grow afterwards.
2:58:37PM There's no evidence of any kind of change or structural break
2:58:40PM at the time they allegedly attained market power.

2:58:44PM **Q.** So we've gone through several measures of change in output
2:58:49PM by number of transactions.

2:58:51PM Did you examine other metrics of output other than the
2:58:55PM number of transactions?

2:58:57PM **A.** Yes.

2:58:59PM **Q.** And did you look at changes in the number of games on the
2:59:03PM App Store over time?

2:59:07PM **A.** Yes. Another form of that output is simply the expansion
2:59:09PM of product variety.

2:59:10PM And what you find is, is that the App Store started at
2:59:13PM about 131 apps. And today -- game apps -- and there's about
2:59:14PM 300,000 available today.

2:59:20PM **Q.** Did Dr. Evans offer any analysis showing any restriction
2:59:24PM of output of game transactions or iOS app transactions?

2:59:28PM A. I don't believe he did any analysis on output restriction.

2:59:32PM Q. That's output. Let's talk about pricing.

2:59:35PM You also looked at pricing; is that right?

2:59:37PM A. That's correct.

2:59:38PM Q. And did you see any evidence that Apple charges a super

2:59:43PM competitive commission?

2:59:44PM A. No. They are generally at market price and the price has

2:59:48PM been declining over time.

2:59:50PM Q. Can I have slide 9, please.

2:59:51PM What did you assess in order to study the effect of

2:59:56PM Apple's conduct on prices?

2:59:57PM A. So you can look at the commission rates that are stated --

3:00:01PM the stated commission rate that Apple has by their policies.

3:00:05PM You can look at the comparable commission rates for the

3:00:08PM competitors. You can look at what Epic paid to its -- to the

3:00:12PM folks who do game transactions for *Fortnite* and other Epic

3:00:18PM Games as well.

3:00:19PM And then you can do a calculation of what I'm calling the

3:00:22PM effective commission rate, which is what you get when you

3:00:25PM consider transactions that are both free and paid and

3:00:28PM construct a composite of what the effective rate is paid

3:00:31PM averaging those two together.

3:00:33PM **THE COURT:** Did you include the amount of support

3:00:37PM that they provide? That is, I think for the \$99, they get

3:00:44PM two -- developers only receive two technical services as

3:00:49PM compared to others?

3:00:51PM **THE WITNESS:** So I didn't compare the developer's
3:00:54PM support side in that particular way so I'm mostly focusing
3:00:58PM here on sort of the top line prices that are being charged.

3:01:01PM I do have a number of other analyses and all the things
3:01:05PM Apple has done to improve the App Store. I don't know if the
3:01:10PM services to developers is factored into that, but there's lots
3:01:13PM of other things that Apple has done to improve the quality of
3:01:15PM the relationship with developers and to make new kind of games
3:01:19PM available.

3:01:20PM **THE COURT:** Proceed.

3:01:21PM **THE WITNESS:** Did that answer your question?

3:01:23PM **THE COURT:** Proceed.

3:01:23PM **MS. RICHMAN:** Thank you, Your Honor.

3:01:25PM **BY MS. RICHMAN:**

3:01:26PM **Q.** Professor Hitt, has Apple reduced its commission over
3:01:30PM time?

3:01:31PM **A.** Generally, yes.

3:01:32PM **Q.** Can we have slide 10, please?

3:01:33PM Can you describe your findings as reflected in this slide?

3:01:40PM **A.** Sure.

3:01:41PM So when the App Store was started, the commission rate for
3:01:44PM downloads was 30 percent. When they added in-app payments,
3:01:51PM the commission for that has been 30 percent, and those numbers
3:01:54PM have stayed constant over time, generally.

3:01:56PM However, there have been a number of specific app programs
3:01:59PM that have reduced those commissions for certain kinds of
3:02:02PM transactions. In 2016, Apple reduced the commission rate for
3:02:07PM subscription renewals after one year to 15 percent.

3:02:10PM At about the same time, they introduced what's called the
3:02:13PM video partner program where certain kinds of providers of
3:02:17PM premium content, think Hulu maybe, pay a 15 percent commission
3:02:23PM on transactions performed through the App Store for that
3:02:30PM content.

3:02:30PM Then more recently, Apple introduced the small business
3:02:32PM developers program which reduces the commissions on all
3:02:34PM transactions to -- all paid transactions to 15 percent for any
3:02:38PM developer earning less than a million dollars a year on the
3:02:42PM App Store.

3:02:43PM **THE COURT:** Did you see any documentation which
3:02:45PM indicated that the 2021 change was contemplated prior to the
3:02:50PM filing of this lawsuit?

3:02:53PM **THE WITNESS:** I have not seen documents one way or
3:02:55PM the other on that. I understand that they have explained that
3:03:01PM they wanted to support innovation, and that was one of the
3:03:04PM reasons, I don't know all the reasons that might be relevant
3:03:06PM there.

3:03:06PM **THE COURT:** You saw nothing that suggested that this
3:03:09PM change was contemplated prior to August of 2020.

3:03:15PM **THE WITNESS:** I don't recall -- to answer your

3:03:17PM earlier question directly, I don't recall anything
3:03:20PM specifically saying they were anticipating a lawsuit there. I
3:03:23PM don't know if those documents exist or not, but I haven't seen
3:03:26PM them.

3:03:27PM **THE COURT:** Proceed.

3:03:27PM **MS. RICHMAN:** Thank you, Your Honor.

3:03:28PM **BY MS. RICHMAN:**

3:03:29PM **Q.** Can we have slide 11, please? Actually this is the one.
3:03:36PM Thank you.

3:03:38PM Professor Hitt, you said you look at Apple's commission
3:03:40PM rate relative to other transaction platforms. Is that what
3:03:46PM you present in this slide?

3:03:48PM **A.** Yes. This is a very simple presentation of different
3:03:51PM transaction platforms that are available. It's not all of
3:03:54PM them but I think there's -- I identified about 14 including
3:03:58PM the App Store, but here's a selection.

3:04:00PM And the height of the bar is simply what the commission
3:04:04PM rate is for digital transactions. And what you see is the App
3:04:08PM Store charges 30 percent. Google Play charges 30 percent.
3:04:11PM Samsung Galaxy Store, Microsoft Store, PlayStation Store,
3:04:17PM Nintendo eShop, and Steam, which is the largest transaction
3:04:21PM platform for PCs, all charge 30 percent.

3:04:25PM The Epic Games Store, as we heard, has a 12 percent
3:04:28PM commission. But the 30 percent compares very favorably to
3:04:33PM what used to be traditional retail where you'd get commission

3:04:37PM rates that could exceed 50 percent.

3:04:40PM Q. Now we have a slide that's related to my next question,
3:04:44PM but I ask that it not be put up because it contains
3:04:48PM confidential information.

3:04:49PM MS. RICHMAN: But slide 12 in your binder, Your
3:04:54PM Honor, is the one to reference although I expect this is not
3:04:58PM going to be news to you.

3:04:59PM BY MS. RICHMAN:

3:04:59PM Q. Professor Hitt, does Epic pay a 30-percent commission to
3:05:05PM other game transaction platforms?

3:05:07PM A. Yes. You've heard some discussion about Epic seeking
3:05:10PM discounts and so forth. But for the most part, Epic pays
3:05:13PM 30 percent on the transaction platforms where *Fortnite* is
3:05:16PM distributed. There are some exceptions, but in general, it's
3:05:21PM 30 percent.

3:05:22PM Q. Now you mentioned earlier that you were listening to the
3:05:25PM trial testimony in this case, correct?

3:05:28PM A. Yes.

3:05:29PM Q. And did you hear Ms. Wright from Microsoft's testimony
3:05:35PM last week that Microsoft does not earn a profit on the sale of
3:05:39PM Xbox devices and only generates profits from commissions on
3:05:45PM Xbox games?

3:05:47PM A. Yes, I did.

3:05:47PM Q. And does that impact your --

3:05:51PM MR. EVEN: Objection, Your Honor.

3:05:52PM

THE COURT: What's the objection?

3:05:56PM

MR. EVEN: I believe it is outside the scope, Your

3:05:58PM

Honor.

3:06:02PM

THE COURT: What part of his report covers this,

3:06:04PM

Ms. Richman?

3:06:11PM

MS. RICHMAN: I believe he talks about it in

3:06:12PM

paragraph 164 of his written Direct testimony.

3:06:16PM

THE COURT: His written Direct only -- Okay. Hold

3:06:22PM

on. 164.

3:06:32PM

MS. RICHMAN: Your Honor, I'm just pulling it up

3:06:33PM

myself. Just generally reporting on the commission rates. It

3:06:36PM

doesn't go to the testimony that Ms. Wright supplied last

3:06:42PM

week, but as an expert in this case, Professor Hitt has been

3:06:47PM

listening to the testimony and is prepared to offer opinions

3:06:53PM

about the economic implications on the testimony given to

3:06:56PM

date.

3:07:02PM

THE COURT: I believe that I allowed -- I'm trying to

3:07:12PM

think -- Professor Athey to supplement. So I will allow you

3:07:24PM

to answer that question.

3:07:26PM

THE WITNESS: Okay.

3:07:27PM

BY MS. RICHMAN:

3:07:27PM

Q. Do you need me to repeat it, Professor Hitt?

3:07:30PM

A. Yes, please.

3:07:31PM

Q. I was asking about Ms. Wright's testimony last week and

3:07:33PM

whether the fact that -- or not, depending on as it may be,

3:07:38PM Microsoft does not earn a profit on the sale of Xbox devices
3:07:43PM changes your opinion on whether Apple's offering a competitive
3:07:48PM commission rate on digital game transactions.

3:07:52PM **A.** No. For at least three reasons.

3:07:54PM One, it's as a matter of economics the market price is set
3:08:00PM by supply and demand. A high cost producer does not
3:08:05PM necessarily have any ability to charge a higher price because
3:08:08PM they are higher cost. That doesn't follow from normal
3:08:12PM economic reasoning. You can argue for it, but ultimately the
3:08:15PM market price depends on the entire market, not just a
3:08:19PM particular producer.

3:08:21PM Second, there's evidence in the record that normally all
3:08:23PM consoles do not necessarily lose money. I won't give the
3:08:27PM figure because I understand that's sealed.

3:08:28PM And then, finally, it's inconsistent with sort of
3:08:32PM observational data. There are platforms that subsidize
3:08:35PM hardwares; those charge 30 percent. There are platforms that
3:08:40PM don't subsidize hardware; those also charge 30 percent. There
3:08:42PM are platforms that don't have any hardware, and they also
3:08:45PM charge 30 percent. At least the empirical evidence is
3:08:49PM consistent with there being a 30 percent market price
3:08:52PM regardless.

3:08:53PM **Q.** Can you provide an example of a transaction platform that
3:08:58PM does not sell devices and charges a 30-percent commission?

3:09:02PM **A.** So, in general, Steam does not sell PCs, although there

are some devices that they do sell elsewhere.

Q. Do developers always pay a commission to Apple when they make transactions through the App Store?

A. No. The commission we've been discussing applies very specifically to downloads, paid downloads and paid in-app digital transactions. All the other ways in which developers can earn revenue are not subject to these commissions.

Q. And what are the other ways that developers can monetize their apps without paying a commission to Apple?

A. So developers can advertise in the app; many do. That's not subject to any commissions.

Developers have the ability to sell digital content outside the app for the use -- for use inside the app. Apple doesn't place any restrictions on doing that, including subscriptions, which you can sell outside the app and use in the app.

There's other forms of monetization. You can do promotional partnerships. You can do physical events, sell stuff. That's also not subject to it, but I think those two are probably the big choices.

Q. And did you measure, quantify the degree to which developers actually pay Apple commission on App Store transactions?

A. Yes.

Q. Can we have 513, please? And the results of that analysis

3:10:36PM shown on this slide?

3:10:38PM **A.** Yes. This is one of the analyses I did. And this focuses
3:10:41PM specifically on the monetization mechanisms that developers
3:10:45PM are using for particular -- particular apps that are available
3:10:50PM on the App Store.

3:10:55PM **Q.** This data was for a single year, fiscal year 2019; that's
3:10:59PM what it says here, correct?

3:11:00PM **A.** That's correct.

3:11:01PM **Q.** And were these numbers in prior years similar to what we
3:11:05PM see here?

3:11:06PM **A.** Yes. I can take you through these just quickly to take
3:11:10PM you through the numbers.

3:11:11PM On the App Store in 2019, 91 percent of games are free to
3:11:16PM download. So they wouldn't incur a download commission.

3:11:21PM What I think is really interesting is 76 percent of the
3:11:24PM games on the App Store are totally free. And that is the
3:11:27PM sense they don't have the paid download and they don't have
3:11:30PM any digital in-app payments either. So these games are
3:11:31PM distributed through the App Store. No commissions generated
3:11:36PM from Apple -- generated to Apple.

3:11:38PM The comparable number for regular apps is 83 percent. And
3:11:43PM these things -- this has shifted over time as your question
3:11:46PM would indicate.

3:11:50PM **Q.** Can you explain how?

3:11:51PM And can we have slide 14 as well?

A. So this slide is, again, passage of time. Starting at the beginning of the App Store through the end of fourth quarter 2019 when the Apple transaction data ends.

It plots three things: It's the proportion of App Store games by different monetization methods. The red line is the number of paid-to-download apps. In the early days, nearly all apps were paid to download. That's something like 80 percent. These -- again, this is focusing on games. So nearly all games were paid to download. That's at 80 percent. That's dropped to less than 10 percent today.

Q. Professor Hitt, is that the red line here?

A. That is the red line.

Q. Okay.

A. Then two other lines on this chart, that 76 percent number I talked about earlier corresponds to the free to download game without in-app purchase. That has been arising over time. And then again -- that's the green line. Then the blue line is the -- are games that are free to download, but monetize at least from the App Store's perspective through in-app purchase, and that has been rising over time as a mechanism that developers are choosing.

Q. Thank you.

THE COURT: Excuse me. Ms. Richman, two minutes.

MS. RICHMAN: Thank you, Your Honor.

BY MS. RICHMAN:

Q. Just try to get through one more slide.

Professor Hitt, did you look at Apple's average commission rate on initial game downloads over time? So I guess what's reflected in the redline here?

A. Yes.

Q. Can we have slide 15, please?

A. Yes, I did.

Q. And is that what is depicted on the slide?

A. Yes. So what is depicted on the slide is, again, passage of time, same period we have been talking about before. Vertical axis is the average -- in effect, what I am calling the average commission rate. What that commission rate is, is if a commission is paid a download, there's a positive commission, I include that number. That's typically 30 percent. If there is a zero price download, if it is free, that is averaged in as a zero.

This is the number you get when you average overall transactions. As you can see, it was a relatively low number to start on average and has been declining over time. And for the obvious reason that, as we saw earlier, the percentage of initial game downloads that are paid has also been falling over time, which has reduced the effective commission rate.

The topline rate that people pay is constant, but the effective rate has declined as developers have moved away from

3:14:33PM paid downloads.

3:14:35PM **MS. RICHMAN:** Your Honor, would this be a good
3:14:37PM stopping point for you?

3:14:38PM **THE COURT:** It would be.

3:14:40PM **MR. BORNSTEIN:** Professor Hitt, we start at 8:00. We
3:14:43PM take care of administrative matters and we start with
3:14:46PM testimony after that. Make sure to be back by 8:00. You are
3:14:49PM excused for the date.

3:14:51PM **THE WITNESS:** Thank you.

3:14:52PM **THE COURT:** Counsel, I've got a hearing on an
3:14:54PM injunction starting in 15 minutes. So we'll stand in recess
3:14:59PM until 8:00 a.m. tomorrow except that I can see Ms. Forrest
3:15:04PM wants to say something.

3:15:06PM **MS. FORREST:** It's only because my eyes now have
3:15:07PM become more expressive in the COVID world with the mask on.

3:15:12PM I wanted to just give Your Honor two pieces of information
3:15:16PM very quickly. One is, it is possible that we will be in
3:15:19PM Apple's case by Friday. I know Your Honor had been wondering
3:15:23PM about that, and we will deal with Apple in terms of the order
3:15:27PM of witnesses.

3:15:27PM The other is to give Your Honor three citations. I'll say
3:15:33PM them slowly. *Perry versus Leak* 488 U.S. 272 pin cite 282,
3:15:41PM U.S. V. Sandoval 472 F. 3d 645, pin cite 651 Ninth Circuit.

3:15:53PM And then lastly *Charlotte's Office* 425 F. 3d 1203, pin
3:16:01PM cite 1212 Ninth Circuit. On the issue we dealt with just

after lunch, Your Honor.

THE COURT: Okay. Thank you.

THE COURT: And then tomorrow we'll finish up
Professor Hitt and then who do we move to, Rossi or Rubinfeld?

MR. DOREN: Professor Rubinfeld, Your Honor.

THE CLERK: Let me get your mic.

MR. DOREN: Professor Rubinfeld, Your Honor.

THE COURT: Then Cragg?

MR. EVEN: Then Dr. Cragg Your Honor.

THE COURT: And Rossi or is Evans coming back?

MS. FORREST: It will be possibly, we think, Evans
coming back for a short time, Barnes, Rossi, Mickens.

THE COURT: Okay. All right. Good enough.

We will stand in recess until 8:00 a.m. tomorrow. Thank
you.

(Proceedings concluded at 3:18 p.m.)

CERTIFICATE OF REPORTERS

We, Diane E. Skillman, Pamela Batalo-Hebel, and

Raynee Mercado certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter. We further certify that we are neither counsel for, related to, nor employed by any of the parties to the action in which this hearing was taken, and further that we are not financially nor otherwise interested in the outcome of the action.

_____/S/DIANE E. SKILLMAN_____

Diane E. Skillman, CSR, RPR, FCRR

_____/S/ PAMELA BATALO-HEBEL_____

Pamela Batalo-Hebel, CSR, RMR, FCRR

_____/s/ Raynee Mercado_____

Raynee Mercado, CSR, RMR, FCRR

WEDNESDAY, MAY 12, 2021